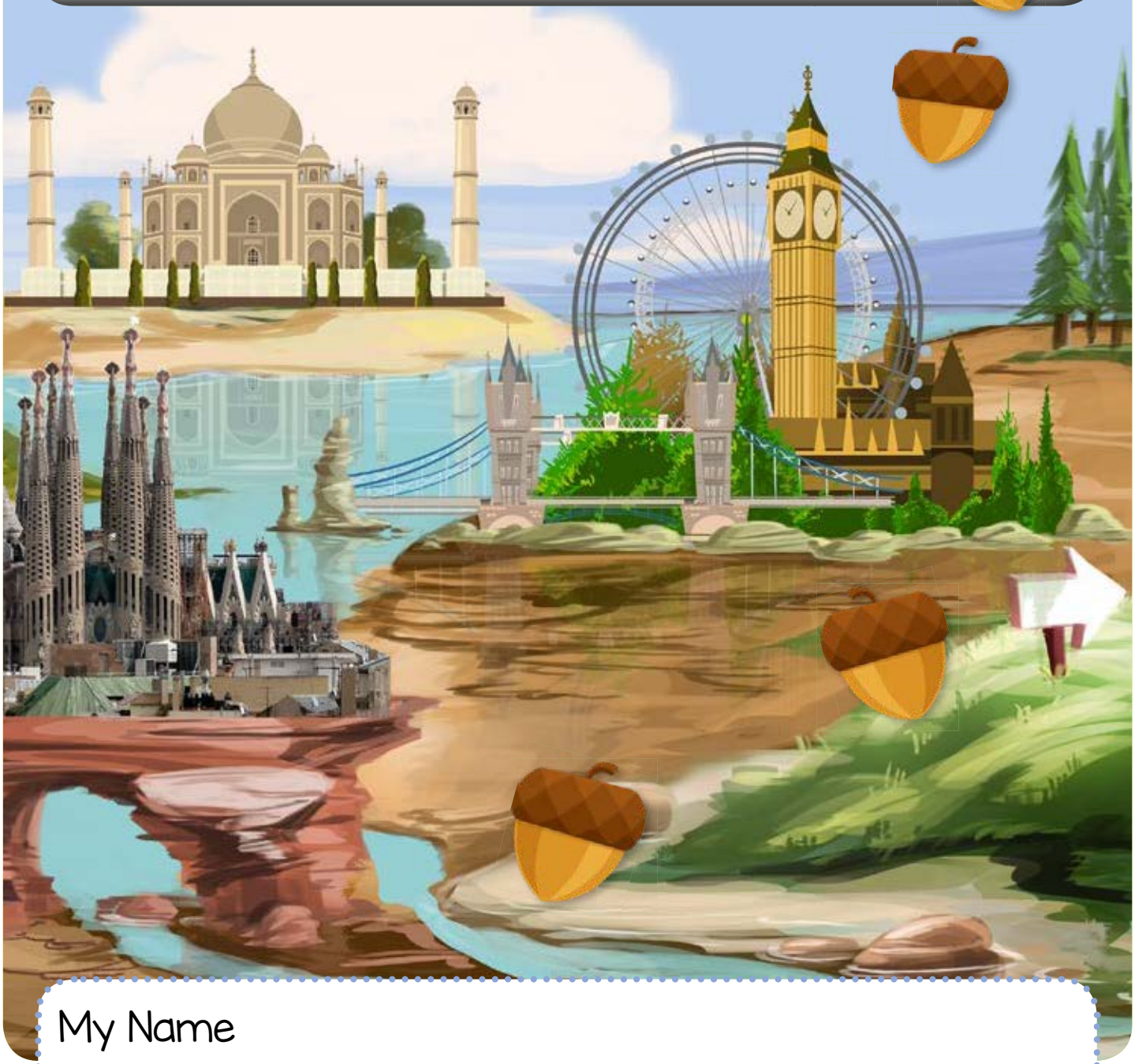
YEAR 3 STUDENT BOOK

Mathseeds

Multiplication and Division



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Mathseeds Multiplication and Division Year 3 Student Book

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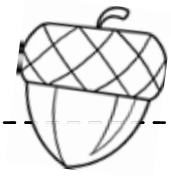
In this book



The **Mathseeds** program teaches children the core maths and problem solving skills needed to be successful at school.

Each online lesson begins by introducing and modelling a mathematical concept. The child then completes a wide range of activities to practise the new skill. These activities present the content in many different ways, so children learn to use and apply each new skill in a variety of situations.

This book is designed to supplement the online program with more exercises in the core mathematical concepts. Each unit focuses on a topic within the main learning strand, presenting a series of pen and paper activities, word problems, puzzles and games to practise their skills and understanding.

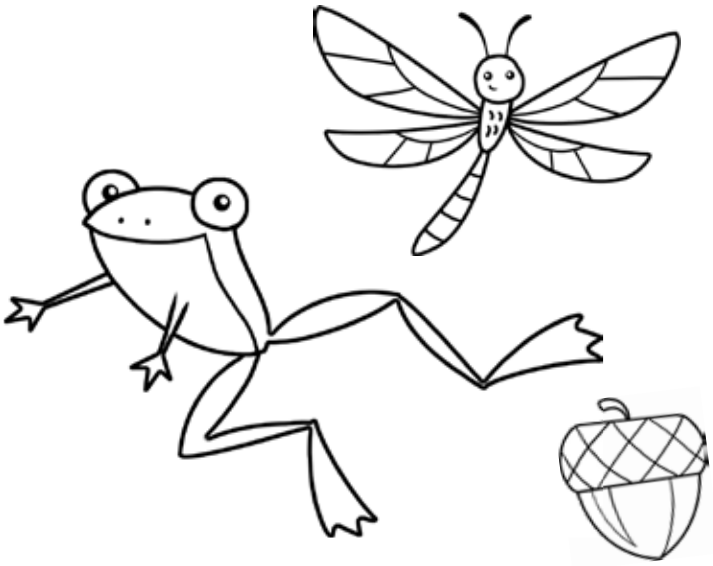
The topics in this book align with the following components of the Australian Curriculum:

Australian Curriculum content codes and descriptions

ACMNA053 - Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems

ACMNA056 - Recall multiplication facts of two, three, five and ten and related division facts

ACMNA057 - Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies



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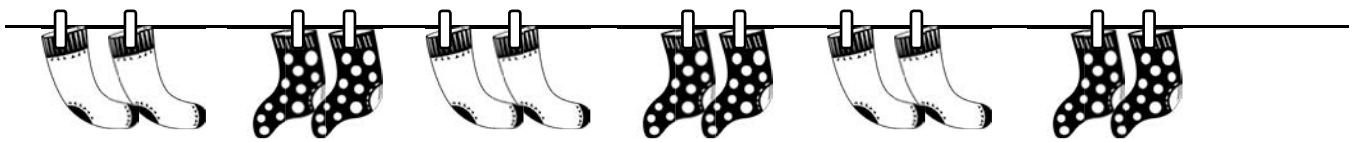
Skip counting

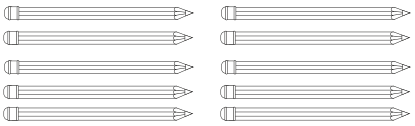
Multiplication

1 How many? Complete the repeated addition.



a 2 + 2 + ☐ + ☐ + ☐ + ☐ = ☐

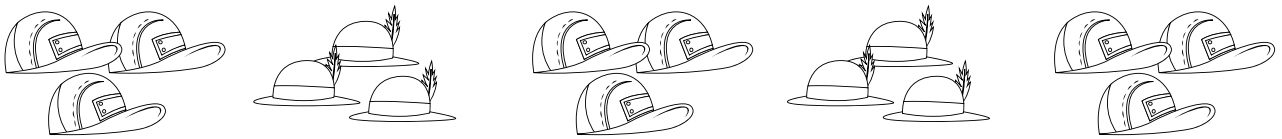
b 3 + ☐ + ☐ = ☐



c ☐ + ☐ = ☐

2 How many? Skip count to find the answer.

a 2, 4, ☐, ☐, ☐, ☐, ☐



b 3, ☐, ☐, ☐, ☐

c ☐, ☐, ☐, ☐

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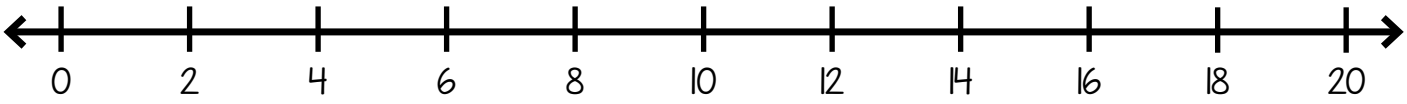
Number lines

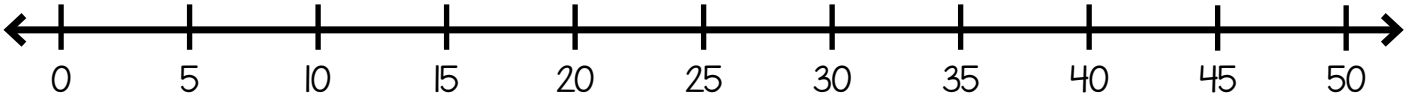
Jump along the number line to find how many.

1 I buy 8 pairs of shoes. How many shoes altogether? ____



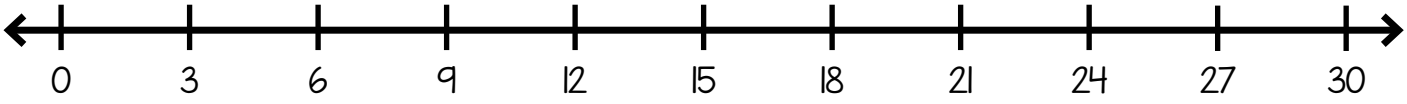
2 You have 5 packs of 5 pens each.

How many pens altogether? ____

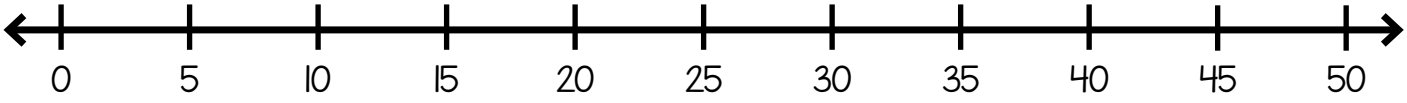


3 We eat 7 baskets with 3 dumplings in each.

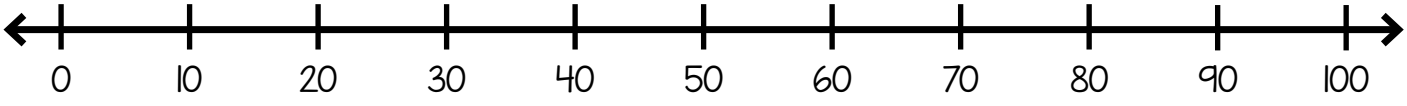
How many dumplings altogether? ____



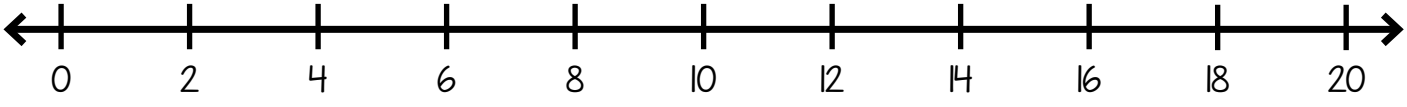
4 7 × 5 = ____



5 9 × 10 = ____



6 5 × 2 = ____



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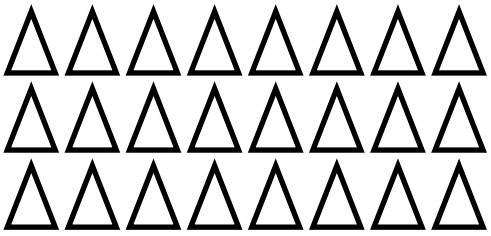
Arrays

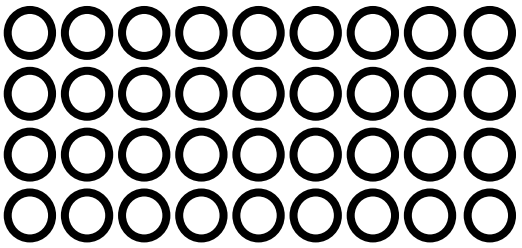
1 Write a multiplication fact for each array.

a



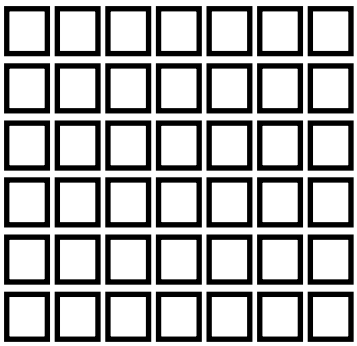
____ × ____ = ____

b



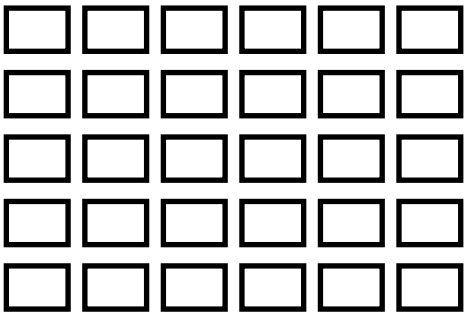
____ × ____ = ____

c



____ × ____ = ____

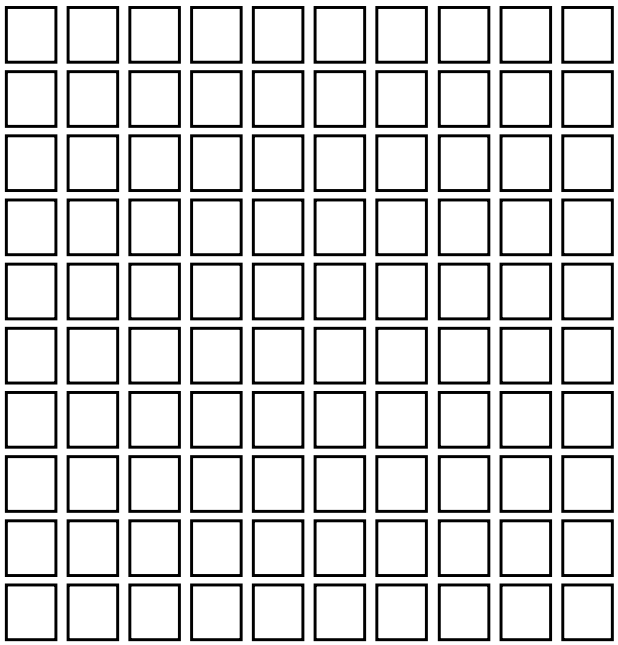
d



____ × ____ = ____

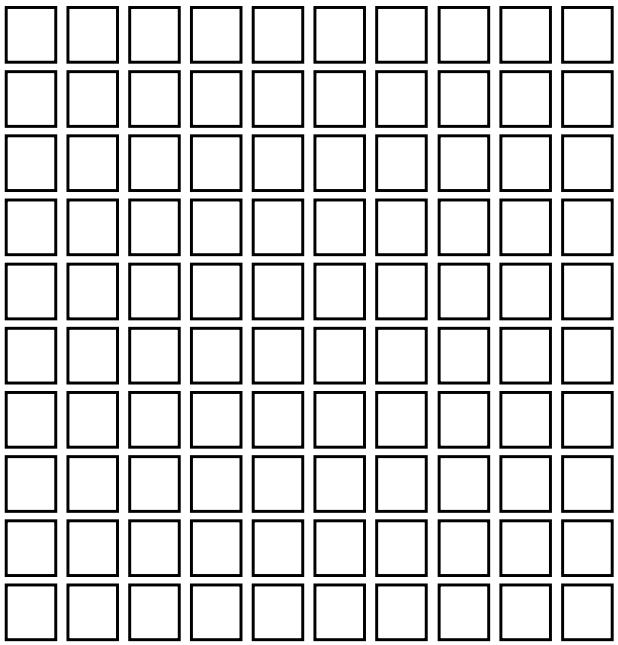
2 Colour an array to match. Find the answer.

a



7 × 8 = ____

b



6 × 9 = ____

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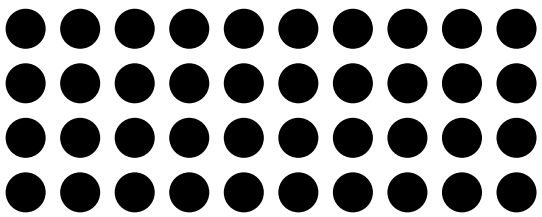
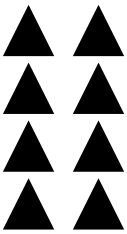
Equations

1 Write an equation to match the array.

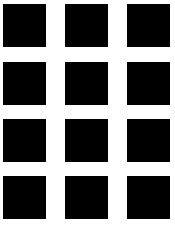


a ☐ × ☐ = ☐

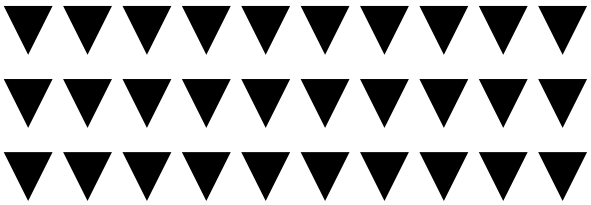


b ☐ × ☐ = ☐

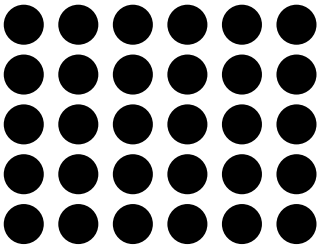
c ☐ × ☐ = ☐



d ☐ × ☐ = ☐



e ☐ × ☐ = ☐



f ☐ × ☐ = ☐

2 What is the missing number?

a 10 × 2 = ____

b 5 × ____ = 50

c ____ × 5 = 45

d 9 × 3 = ____

e 3 × ____ = 6

f ____ × 2 = 4

g 8 × 5 = ____

h 7 × ____ = 70

i ____ × 10 = 100

j 2 × 7 = ____

k 6 × ____ = 12

l ____ × 4 = 16

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Array problems

Multiplication

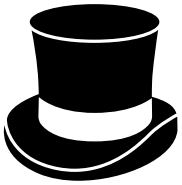
a Draw an array for each question.

b Complete the equation and find the product.

1 Ruby has 10 hats with 5 feathers on each hat. How many feathers are there altogether?

a

b __ × __ = __



2 Mango's muffin tray holds 8 muffins. She makes 3 trays of muffins. How many muffins in total?

a

b __ × __ = __

3 Doc has 5 tie racks. Each rack holds 6 ties. How many ties does Doc have altogether?

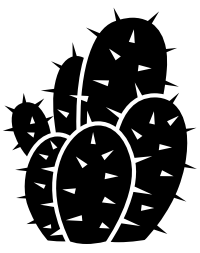
a

b __ × __ = __

4 Mrs T eats 7 cactus plants in a day. How many plants does she eat in a week?

a

b __ × __ = __



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Related equations

Multiplication

a Draw shapes to make an array for each equation.

b Write a second equation for the array. Find the product.

1 2 × 8

a

b __ × __ = __

2 4 × 5

a

b __ × __ = __

3 5 × 3

a

b __ × __ = __

4 6 × 4

a

b __ × __ = __

5 3 × 7

a

b __ × __ = __

6 9 × 2

a

b __ × __ = __

7 5 × 5

a

b __ × __ = __

8 3 × 2

a

b __ × __ = __

9 4 × 10

a

b __ × __ = __

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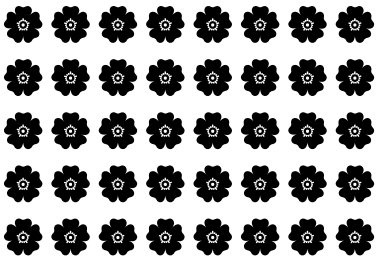
Algorithms and arrays

Multiplication

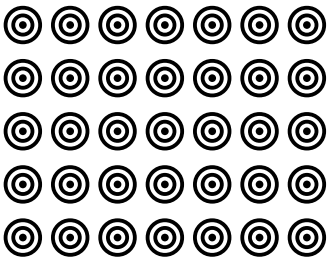
1 Write an algorithm to match the array.

a



×

b



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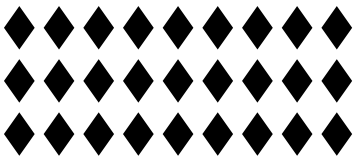
c



×

d

×

2 Use times tables facts to find the answer.

a	3 × 7 =	**b**	4 × 6 =	**c**	5 × 9 =	**d**	7 × 4 =
e	5 × 5 =	**f**	6 × 8 =	**g**	9 × 7 =	**h**	8 × 8 =
i	4 × 5 =	**j**	3 × 3 =	**k**	7 × 9 =	**l**	6 × 6 =

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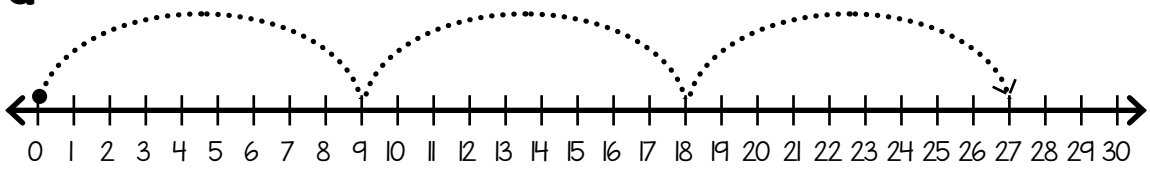
Algorithms and number lines

Multiplication

1 Write an algorithm to match each number line.

a



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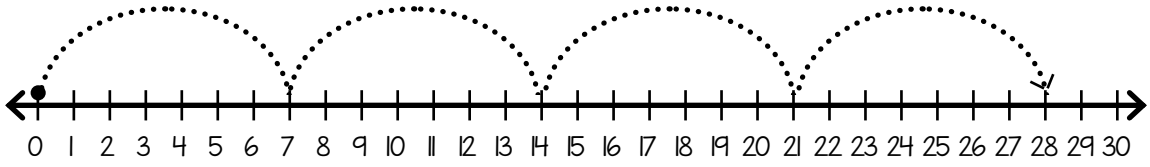
b



× ☐
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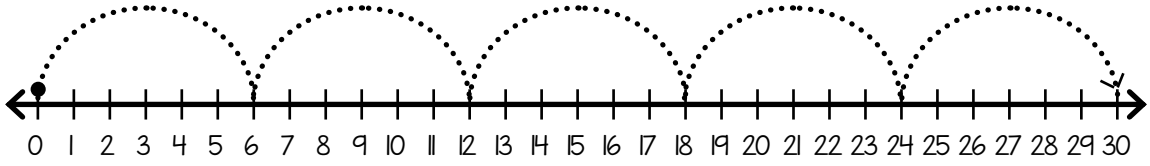
c



× ☐
☐
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2 Show these multiplications on the number line. Find the answer.

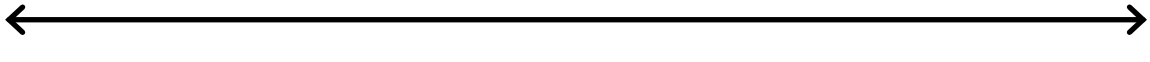
a

$$\begin{array}{r} 3 \\ \times\ 7 \\ \hline \\ \hline \end{array}$$

b

$$\begin{array}{r} 8 \\ \times\ 4 \\ \hline \\ \hline \end{array}$$

c



$$\begin{array}{r} 9 \\ \times\ 5 \\ \hline \\ \hline \end{array}$$

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Multiplication problems

Multiplication

Draw an array, a number line or a picture to solve the problem.

1 Ruby folds t-shirts into piles of five. She has three piles.

How many shirts altogether? ____

2 Dizzy grabs six bags of balls for game day. Each bag has ten balls in it.

How many balls altogether? ____

3 Doc has five shelves with ten books on each shelf.

How many books altogether? ____

4 Ruby, Mrs T and Mango are trying on hats. They end up buying four hats each.

How many hats altogether? ____

5 Mrs T uses three tea bags for each pot of tea. She drank six pots of tea today.

How many tea bags did she use? ____

6 Waldo naps for ten minutes. He does this seven times today!

How much extra sleep did Waldo get from his naps?

____

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SKIP COUNT CIRCLE

Play as a class or in a group of 5 or more people.
Use a spinner with numbers 1–10 (see page 56).

1. Sit in a circle. Pick a number to skip count using the spinner.
2. The first person in the circle says the number.

   The next person in the circle mentally adds that same number to the first and says the answer.

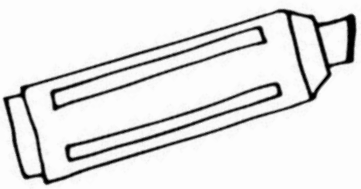
   The next person in the circle adds the number to that answer. And so on around the circle, skip counting by the number.
3. Continue until someone makes a mistake.
   Then spin and go again.

Variation: Keep track of the highest number you get to for each skip counting digit and try to get a better score next time.

ARRAY RACE

Play in pairs. You need a different coloured pencil or texta each, a sheet of grid paper (see page 57) and two 10-sided spinners. (see page 56).

1. Player A: spin both spinners. Use the two numbers to colour in an array that size. For example you spin a 5 and a 3 so you colour an array of 5 rows of 3 squares.
2. Player B: spins and colours an array.
3. Keep taking turns until one player can't fit their array in. The winner has coloured in the most squares.



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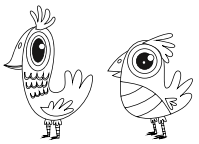
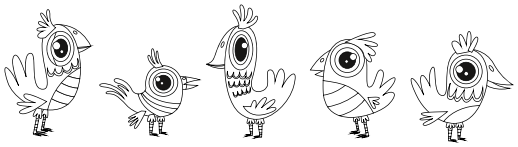
2 times table

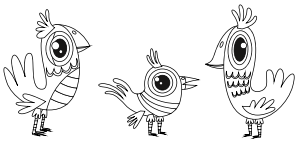
1 How many wings? Complete the equations.



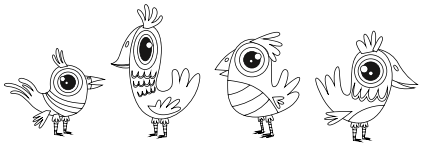
a ____ × 2 = ____



b ____ × 2 = ____

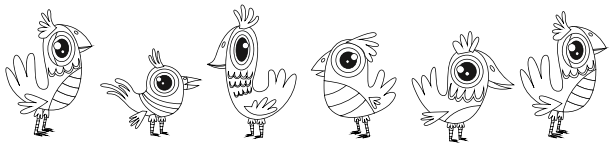


c ____ × 2 = ____



d ____ × 2 = ____

e ____ × 2 = ____



f ____ × 2 = ____

2 Find the answers.

×	0	1	2	3	4	5	6	7	8	9	10
2											

3 Complete.

a 2 × 4 = ____ × 2 = 8

b 2 × 7 = ____ × 2 = ____

c 2 × 3 = ____ × ____ = ____

d 2 × 9 = ____ × ____ = ____

e 2 × 5 = ____ × ____ = ____

f 2 × 8 = ____ × ____ = ____

g 2 × 10 = ____ × ____ = ____

h 2 × 0 = ____ × ____ = ____

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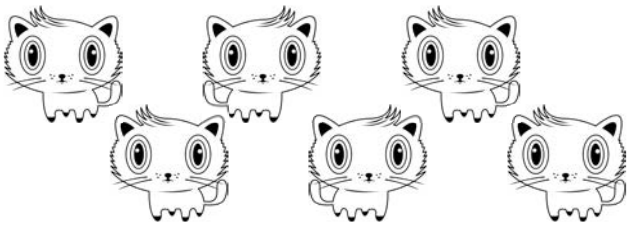
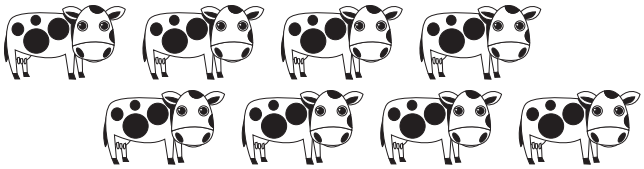
4 times table

1 How many legs? Complete the equations.

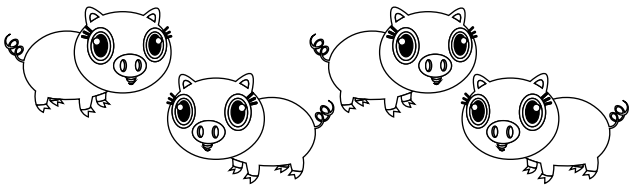
a ____ × 4 = ____



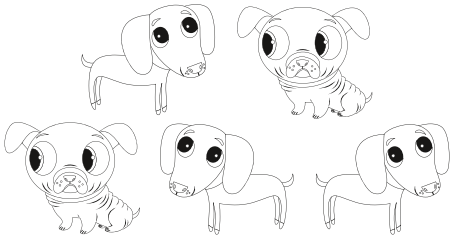
b ____ × 4 = ____



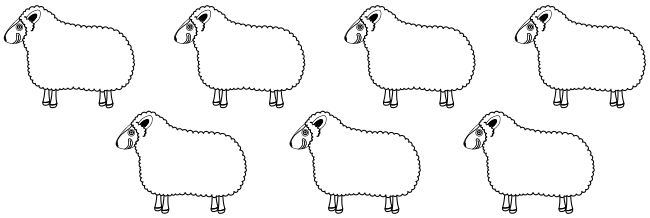
c ____ × 4 = ____



d ____ × 4 = ____



e ____ × 4 = ____



f ____ × 4 = ____

2 Find the answers.

×	0	1	2	3	4	5	6	7	8	9	10
4											

3 Complete.

a 4 × 2 = 2 × 4 = ____

b 4 × 5 = ____ × 4 = ____

c 4 × 7 = ____ × ____ = ____

d 4 × 8 = ____ × ____ = ____

e 4 × 3 = ____ × ____ = ____

f 4 × 6 = ____ × ____ = ____

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Doubling

1 Double each number.

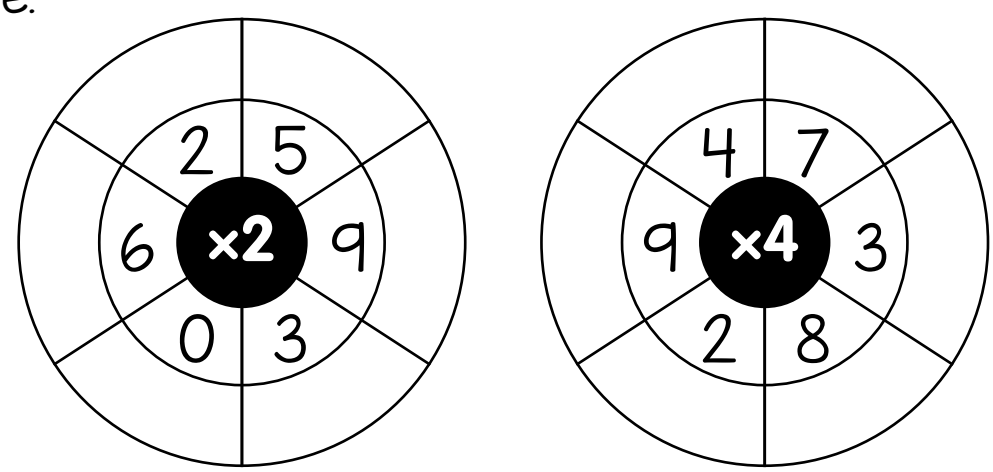
0	1	2	3	4	5	6	7	8	9	10

2 What times table is this? _____

3 Now double the numbers again.

4 What times table is this? _____

5 Complete.



6 Fill in the gaps.

a 2 × ___ = 8 **b** 3 × ___ = 6 **c** 4 × ___ = 16

d 5 × ___ = 20 **e** 6 × ___ = 12 **f** 7 × ___ = 14

g 8 × ___ = 32 **h** 9 × ___ = 36 **i** 10 × ___ = 20

j 4 × ___ = 40 **k** 8 × ___ = 16 **l** 6 × ___ = 24

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8 times table

1 Find the answers.

×	0	1	2	3	4	5	6	7	8	9	10
8											

2 How many legs?

a 1 × 8 = 8 × 1 = ____

b 10 × 8 = 8 × ____ = ____

c 4 × 8 = ____ × ____ = ____

d 6 × 8 = ____ × ____ = ____

e ____ × 8 = ____ × ____ = ____

f ____ × 8 = ____ × ____ = ____

g ____ × ____ = ____ × ____ = ____

h ____ × ____ = ____ × ____ = ____

i ____ × ____ = ____ × ____ = ____

j ____ × ____ = ____ × ____ = ____

3 Complete.

a 8 × ____ = 16

b 8 × ____ = 40

c 8 × ____ = 32

d 8 × ____ = 56

e 8 × ____ = 24

f 8 × ____ = 48

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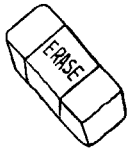
10 times table

1 Write equations for the problems.

8 packets of 10 pencils. How many pencils altogether?

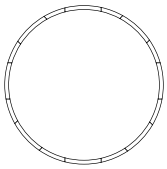
a ____ × ____ = ____

10 erasers in a box. 3 boxes. How many erasers in total?



b ____ × ____ = ____

4 children grab the hoop. How many fingers on the hoop?



c ____ × ____ = ____

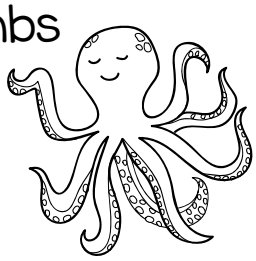
10 decades in a century. How many years is that?

d ____ × ____ = ____

I have two $10 notes. How much money do I have?

e ____ × ____ = ____

9 squids have 10 limbs each. How many squid limbs in total?



f ____ × ____ = ____

2 Find the answers.

×	0	1	2	3	4	5	6	7	8	9	10
10											

3 Complete.

a 10 × 5 = ____

b 10 × ____ = 90

c 10 × 2 = ____

d 10 × ____ = 100

e 10 × 6 = ____

f 10 × ____ = 30

g 10 × 1 = ____

h 10 × ____ = 70

i 10 × 4 = ____

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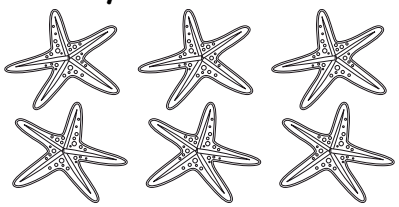
5 times table

Times tables

1 Write equations to find the answers.

How many limbs?



a ____ × ____ = ____

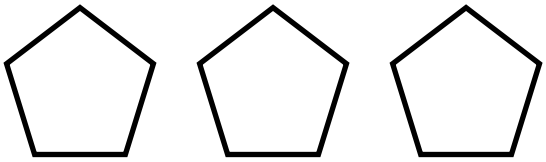
How many toes?

b ____ × ____ = ____

How many cents?

c ____ × ____ = ____

How many sides?



d ____ × ____ = ____

2 Find the answers.

×	0	1	2	3	4	5	6	7	8	9	10
5											

3 Double those answers.

× 2											

4 What times table is this? _____

5 Complete.

a 5 × 5 = ____ **b** 5 × ____ = 40 **c** 5 × 2 = ____

d 5 × ____ = 20 **e** 5 × 9 = ____ **f** 5 × ____ = 30

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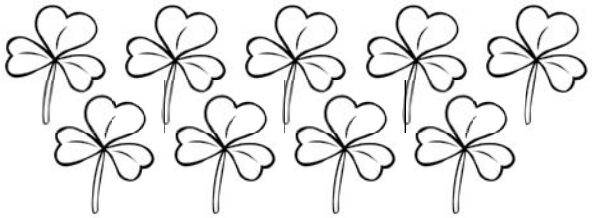
3 times table

1 How many leaves?

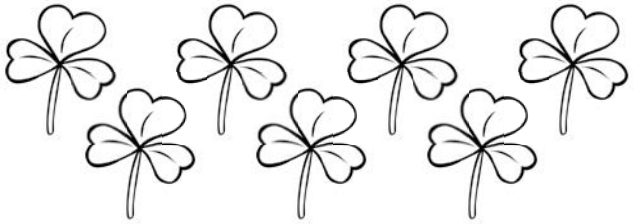
a ____ × 3 = ____



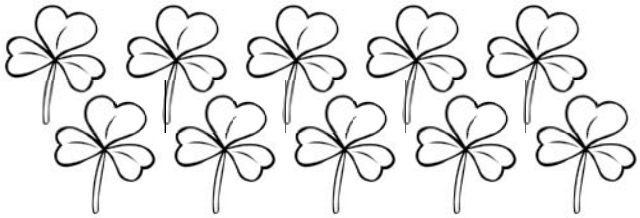
b ____ × 3 = ____

c ____ × 3 = ____

d ____ × 3 = ____



e ____ × 3 = ____



f ____ × 3 = ____

2 Find the answers.

×	0	1	2	3	4	5	6	7	8	9	10
3											

3 Complete.

a 3 × 2 = 2 × 3 = ____

b 3 × 5 = ____ × 3 = ____

c 3 × 7 = ____ × ____ = ____

d 3 × 8 = ____ × ____ = ____

e 3 × 3 = ____ × ____ = ____

f 3 × 6 = ____ × ____ = ____

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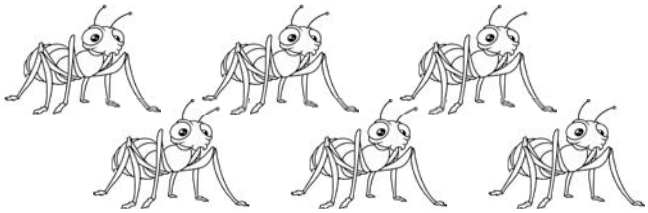
6 times table

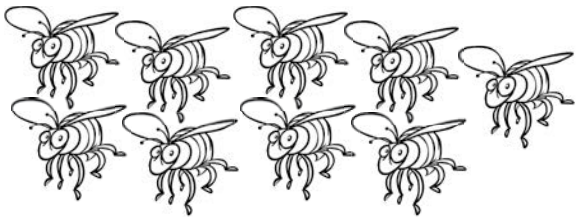
1 Find the answers.

×	0	1	2	3	4	5	6	7	8	9	10
6											

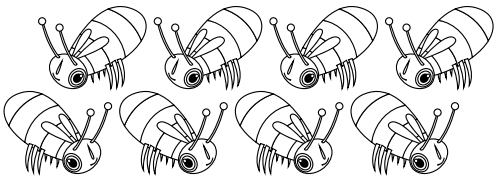
2 How many legs?



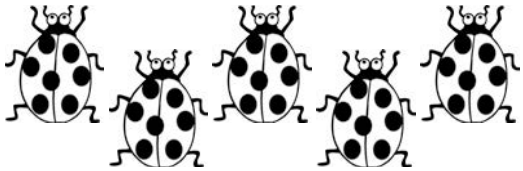
a ____ × 6 = ____



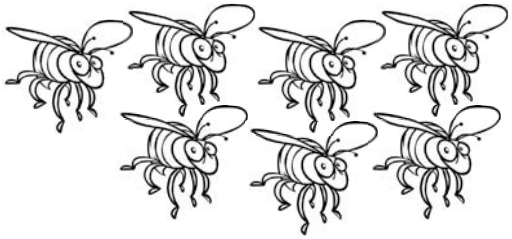
b ____ × 6 = ____



c ____ × 6 = ____

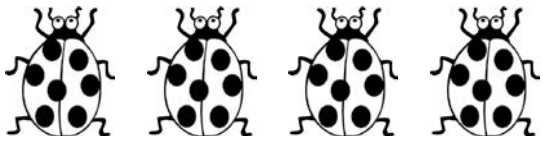


d ____ × 6 = ____

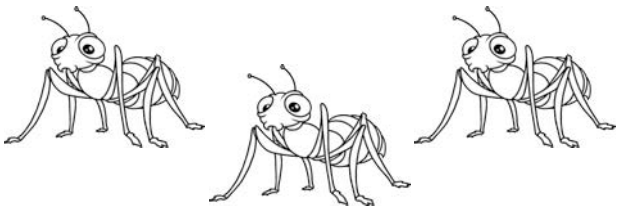


e ____ × 6 = ____

f ____ × 6 = ____



g ____ × 6 = ____



h ____ × 6 = ____

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Multiplication facts

Times tables

1 Fold this sheet in half. Complete the top half. Time yourself.

a $8 \times 2 =$ ____	**b** $7 \times 7 =$ ____	**c** $3 \times 9 =$ ____
d $6 \times 5 =$ ____	**e** $4 \times 9 =$ ____	**f** $5 \times 5 =$ ____
g $10 \times 3 =$ ____	**h** $9 \times 8 =$ ____	**i** $7 \times 4 =$ ____
j $8 \times 8 =$ ____	**k** $9 \times 2 =$ ____	**l** $4 \times 6 =$ ____
m $3 \times 8 =$ ____	**n** $9 \times 9 =$ ____	**o** $6 \times 10 =$ ____
p $7 \times 9 =$ ____	**q** $8 \times 4 =$ ____	**r** $6 \times 6 =$ ____
s $5 \times 4 =$ ____	**t** $6 \times 8 =$ ____	**u** $6 \times 3 =$ ____
v $10 \times 10 =$ ____	**w** $7 \times 5 =$ ____	**x** $9 \times 6 =$ ____
y $5 \times 9 =$ ____	**z** $6 \times 7 =$ ____	**Time:** _____

2 Complete the bottom half. Time yourself. Were you faster?

a $4 \times 4 =$ ____	**b** $7 \times 8 =$ ____	**c** $8 \times 6 =$ ____
d $8 \times 5 =$ ____	**e** $3 \times 7 =$ ____	**f** $9 \times 4 =$ ____
g $8 \times 3 =$ ____	**h** $9 \times 5 =$ ____	**i** $4 \times 5 =$ ____
j $8 \times 9 =$ ____	**k** $7 \times 6 =$ ____	**l** $5 \times 7 =$ ____
m $9 \times 3 =$ ____	**n** $4 \times 8 =$ ____	**o** $9 \times 7 =$ ____
p $5 \times 6 =$ ____	**q** $2 \times 9 =$ ____	**r** $4 \times 7 =$ ____
s $6 \times 9 =$ ____	**t** $10 \times 4 =$ ____	**u** $7 \times 10 =$ ____
v $6 \times 4 =$ ____	**w** $8 \times 7 =$ ____	**x** $3 \times 5 =$ ____
y $4 \times 3 =$ ____	**z** $5 \times 8 =$ ____	**Time:** _____

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Times table problems

Times tables

1 Write the equation and find the answer.

a Jenny had four packets of eight lollies each. How many lollies altogether? ____ × ____ = ____

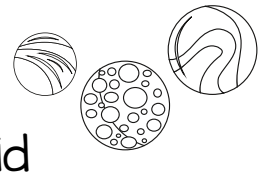
b Benny made five cakes. Each cake used two eggs. How many eggs altogether? ____ × ____ = ____

c Penny bought nine packets of bouncy balls. Each pack had four balls in it. How many balls altogether? ____ × ____ = ____

d Kenny organised his toy soldiers. He had two rows of six soldiers. How many soldiers altogether? ____ × ____ = ____

e Lenny baked four trays of muffins. Each tray held six muffins. How many muffins altogether? ____ × ____ = ____

2 Find the answer.



a Billy gave two marbles to each of seven friends. How many marbles did he give out? _____

b Lily cut four pizzas into four slices each. How many slices of pizza? _____

c Willy washed five cars. How many wheels did he wash? _____

d Milly bought four new pairs of shoes. How many shoes altogether? _____

e Gilly was given two packets of new pencils. Each pack held nine pencils. How many new pencils altogether? _____

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Mental maths puzzle

Times tables

Complete the sums to decode the message.

____	____	____	____		____	____	____		____	____	____	____	
2 × 4	3 × 3	5 × 5	6 × 7		4 × 5	8 × 5	9 × 3		7 × 4	4 × 4	2 × 9	3 × 6	
____	____	____	____		____	____	____	____					
8 × 4	5 × 6	4 × 10	6 × 6		4 × 9	4 × 6							
____	____	____			____	____	____						
3 × 12	5 × 2	3 × 10			7 × 5	3 × 8	2 × 12						
____	____				____	____							
9 × 4	6 × 4				9 × 5	6 × 5	10 × 3						
____	____	____			____	____	____						
2 × 10					2 × 6	8 × 3	7 × 7						
____	____	____	____	____	____								
3 × 4	5 × 4	7 × 9	2 × 8	6 × 3	10 × 10								

A 20	**B** 8	**C** 25	**D** 27	**E** 30	**F** 12	**G** 6
H 10	**I** 16	**J** 28	**K** 42	**L** 18	**M** 63	**N** 40
O 24	**P** 33	**Q** 48	**R** 4	**S** 45	**T** 36	**U** 9
V 55	**W** 32	**X** 49	**Y** 100	**Z** 35		

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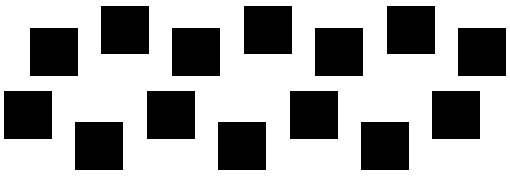
Groups

1 Share the shapes into groups. Find the answer.

a

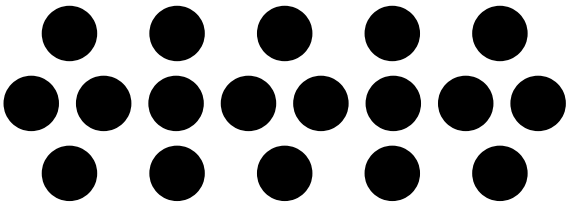
15 ÷ 5 = ☐

b



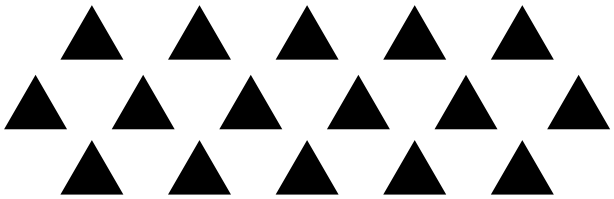
14 ÷ 7 = ☐

c



18 ÷ 2 = ☐

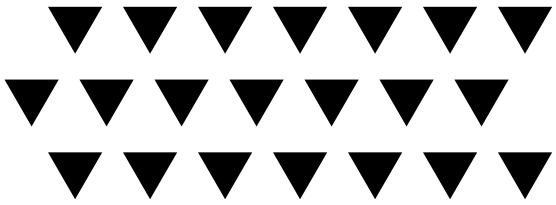
d



16 ÷ 4 = ☐

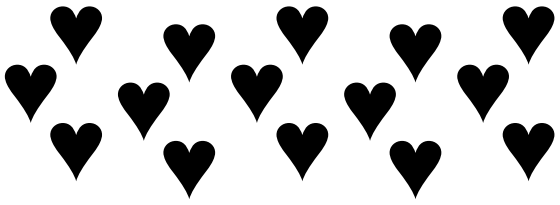
2 Share the shapes into groups. Find the missing number.

a



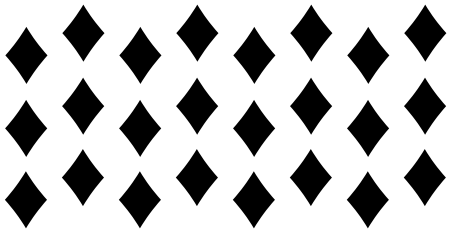
21 ÷ ☐ = 3

b



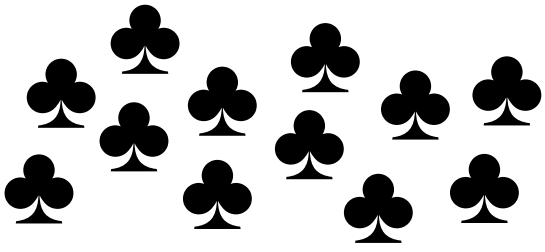
15 ÷ ☐ = 5

c



24 ÷ ☐ = 4

d



12 ÷ ☐ = 2

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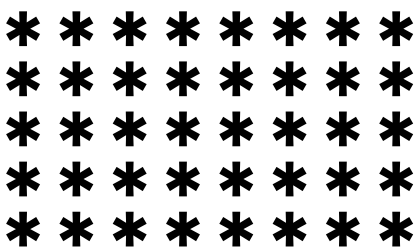
Arrays

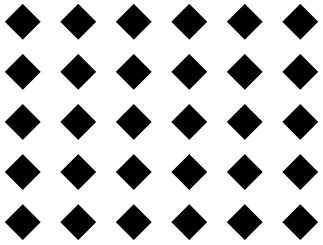
1 Write a division equation to go with each array.

a



□ ÷ □ = □

b



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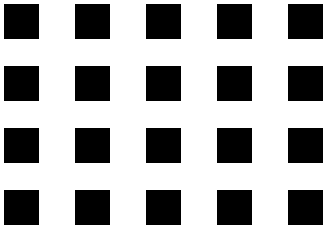
c



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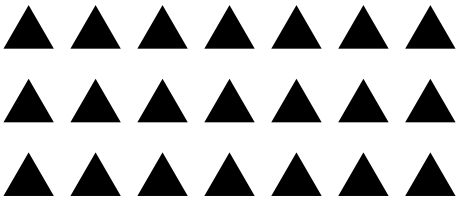
d



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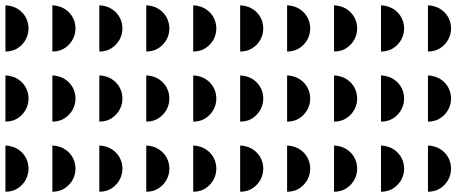
e



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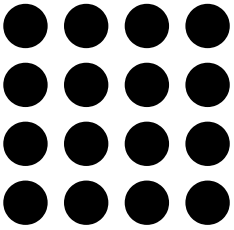
f

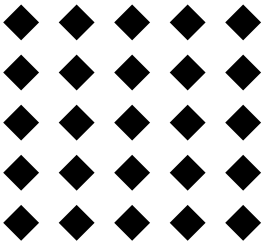


□ ÷ □ = □

g

□ ÷ □ = □

h



□ ÷ □ = □

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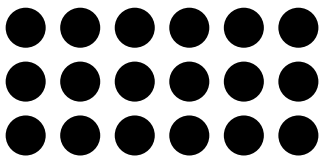
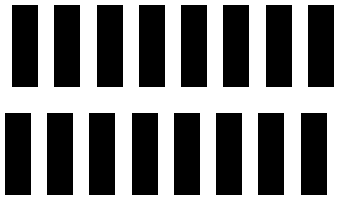
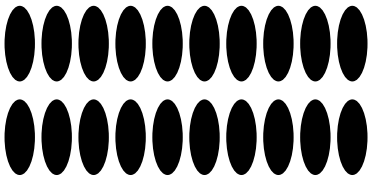
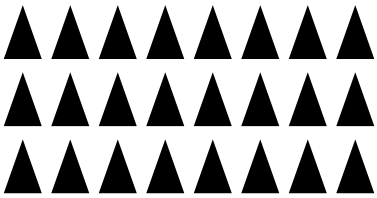
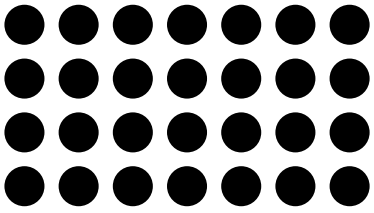
Equations

Division

Use the array.	**1** Answer the sum.	**2** Write the related sum.
a 	18 ÷ 3 = ☐	☐ ÷ ☐ = ☐
b	12 ÷ 3 = ☐	☐ ÷ ☐ = ☐
c 	16 ÷ 2 = ☐	☐ ÷ ☐ = ☐
d 	20 ÷ 2 = ☐	☐ ÷ ☐ = ☐
e 	24 ÷ 3 = ☐	☐ ÷ ☐ = ☐
f 	28 ÷ 4 = ☐	☐ ÷ ☐ = ☐
g	14 ÷ 2 = ☐	☐ ÷ ☐ = ☐

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Inverse operations

Division

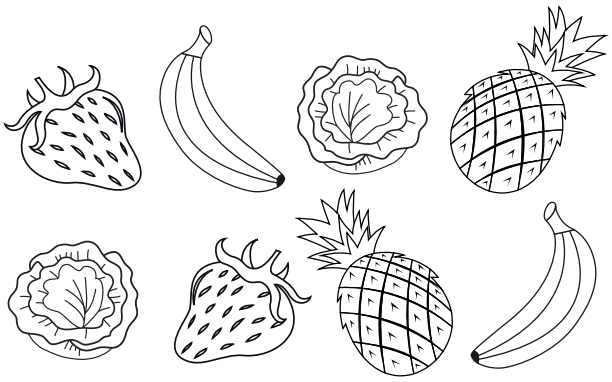
1 Write a multiplication and a division for each array.

a

$2 \times 3 = 6$

$6 \div ____ = ____$

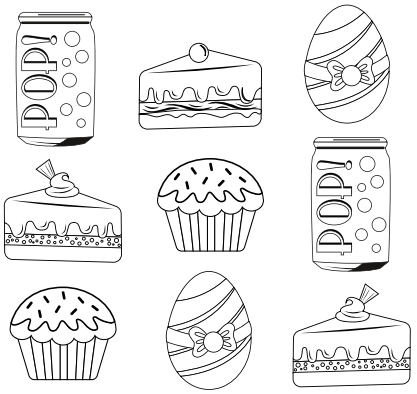
b



$2 \times 4 = ____$

$____ \div ____ = ____$

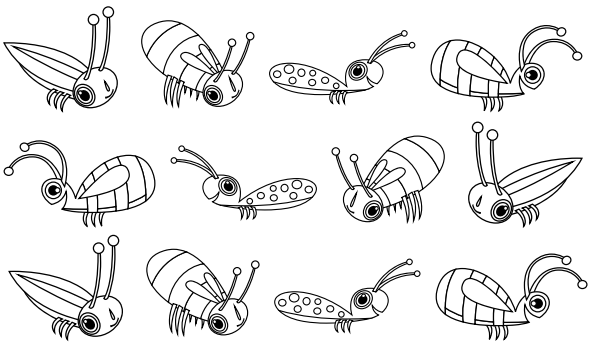
c



$____ \times ____ = ____$

$____ \div ____ = ____$

d



$____ \times ____ = ____$

$____ \div ____ = ____$

2 Complete the inverse operations.

a $5 \times 6 = ____$

$____ \div ____ = ____$

b $20 \div 5 = ____$

$____ \times ____ = ____$

c $4 \times 6 = ____$

$____ \div ____ = ____$

d $27 \div 3 = ____$

$____ \times ____ = ____$

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Related sums

Division

1 Write the related sums.

a 2 × 4 = 8

□ × □ = □

b 3 × 5 = 15

□ × □ = □

c 4 × 6 = 24

□ × □ = □

d 5 × 6 = 30

□ × □ = □

e 6 × 10 = 60

□ × □ = □

f 7 × 4 = 28

□ × □ = □

2 Write the related sums.

a 50 ÷ 5 = 10

□ ÷ □ = □

b 36 ÷ 9 = 4

□ ÷ □ = □

c 72 ÷ 8 = 9

□ ÷ □ = □

d 42 ÷ 7 = 6

□ ÷ □ = □

e 32 ÷ 4 = 8

□ ÷ □ = □

f 21 ÷ 7 = 3

□ ÷ □ = □

3 Write the related sums.

a 2 × 8 = 16

□ ÷ □ = □

b 9 × 3 = 27

□ ÷ □ = □

c 5 × 5 = 25

□ ÷ □ = □

d 4 × 5 = 20

□ ÷ □ = □

e 6 × 8 = 48

□ ÷ □ = □

f 7 × 7 = 49

□ ÷ □ = □

4 Write the related sums.

a 35 ÷ 7 = 5

□ × □ = □

b 24 ÷ 3 = 8

□ × □ = □

c 90 ÷ 9 = 10

□ × □ = □

d 45 ÷ 9 = 5

□ × □ = □

e 56 ÷ 8 = 7

□ × □ = □

f 81 ÷ 9 = 9

□ × □ = □

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Division

1 Answer the division equations.

a 18 ÷ 9 = ☐	**b** 14 ÷ 2 = ☐	**c** 30 ÷ 6 = ☐
d 24 ÷ 4 = ☐	**e** 12 ÷ 2 = ☐	**f** 49 ÷ 7 = ☐
g 15 ÷ 5 = ☐	**h** 30 ÷ 10 = ☐	**i** 16 ÷ 4 = ☐
j 32 ÷ 8 = ☐	**k** 21 ÷ 3 = ☐	**l** 45 ÷ 9 = ☐

2 Are these equations correct? ✓ for yes. ✗ for no.

a 12 ÷ 3 = 4 ☐	**b** 16 ÷ 8 = 3 ☐	**c** 24 ÷ 8 = 3 ☐
d 24 ÷ 4 = 4 ☐	**e** 18 ÷ 6 = 3 ☐	**f** 20 ÷ 5 = 5 ☐
g 28 ÷ 4 = 9 ☐	**h** 25 ÷ 5 = 5 ☐	**i** 48 ÷ 6 = 7 ☐
j 36 ÷ 6 = 6 ☐	**k** 42 ÷ 7 = 7 ☐	**l** 35 ÷ 7 = 5 ☐

3 Complete the equation. Write the related division.

a 20 ÷ 4 = ☐ _____

b 36 ÷ 9 = ☐ _____

c 63 ÷ 7 = ☐ _____

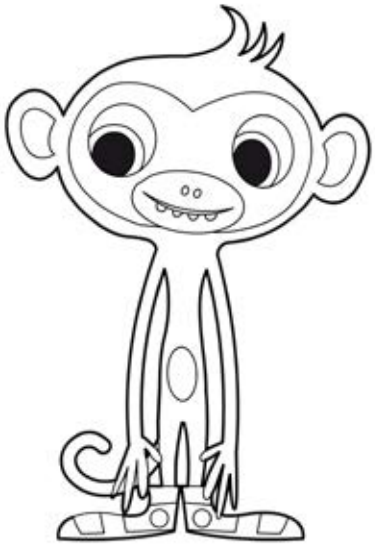
d 48 ÷ 6 = ☐ _____

e 27 ÷ ☐ = 3 _____

f 54 ÷ ☐ = 9 _____

g 40 ÷ ☐ = 4 _____

h 72 ÷ ☐ = 8 _____



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Division facts

Division

1 Fold this sheet in half. Complete the top half. Time yourself.

a 16 ÷ 4 = ____	**b** 56 ÷ 7 = ____	**c** 48 ÷ 8 = ____
d 21 ÷ 3 = ____	**e** 36 ÷ 6 = ____	**f** 90 ÷ 9 = ____
g 40 ÷ 5 = ____	**h** 32 ÷ 4 = ____	**i** 54 ÷ 9 = ____
j 35 ÷ 5 = ____	**k** 60 ÷ 10 = ____	**l** 28 ÷ 7 = ____
m 63 ÷ 7 = ____	**n** 36 ÷ 4 = ____	**o** 45 ÷ 5 = ____
p 72 ÷ 9 = ____	**q** 64 ÷ 8 = ____	**r** 42 ÷ 6 = ____
s 24 ÷ 8 = ____	**t** 25 ÷ 5 = ____	**u** 81 ÷ 9 = ____
v 24 ÷ 4 = ____	**w** 30 ÷ 6 = ____	**x** 27 ÷ 9 = ____
y 18 ÷ 3 = ____	**z** 20 ÷ 5 = ____	**Time:** ____

2 Complete the bottom half. Time yourself. Were you faster?

a 80 ÷ 10 = ____	**b** 49 ÷ 7 = ____	**c** 54 ÷ 6 = ____
d 28 ÷ 4 = ____	**e** 63 ÷ 9 = ____	**f** 30 ÷ 5 = ____
g 100 ÷ 10 = ____	**h** 42 ÷ 7 = ____	**i** 35 ÷ 7 = ____
j 72 ÷ 8 = ____	**k** 20 ÷ 4 = ____	**l** 81 ÷ 9 = ____
m 27 ÷ 3 = ____	**n** 18 ÷ 6 = ____	**o** 45 ÷ 9 = ____
p 24 ÷ 6 = ____	**q** 48 ÷ 6 = ____	**r** 32 ÷ 8 = ____
s 70 ÷ 7 = ____	**t** 40 ÷ 8 = ____	**u** 21 ÷ 7 = ____
v 24 ÷ 3 = ____	**w** 64 ÷ 8 = ____	**x** 36 ÷ 9 = ____
y 36 ÷ 6 = ____	**z** 56 ÷ 8 = ____	**Time:** ____

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Division problems

Division

a Circle the numbers and clues.

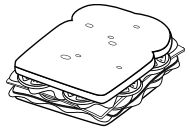
b Complete the equation. Calculate the answer.

1 **a** Dizzy has 24 fishing flies. He shares them equally between himself, Ruby and Mrs T. How many flies does each person get?

b ____ ÷ ____ = ____

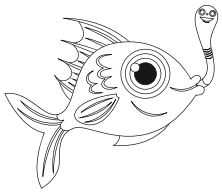
2 **a** Mrs T makes 24 sandwiches. She puts an equal number into each of four boxes. How many sandwiches in each box?

b ____ ÷ ____ = ____



3 **a** Ruby has 24 m of fishing line. She cuts it into twelve equal lengths. How long is each short line?

b ____ ÷ ____ = ____



4 **a** Ruby, Mrs T and Dizzy each bring the same number of apples. Altogether they have 36 apples. How many did each person bring?

b ____ ÷ ____ = ____

5 Write a problem to go with this division equation.

36 ÷ 6 = 6

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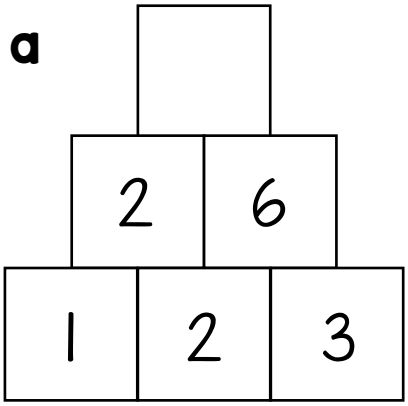
Pyramid puzzles

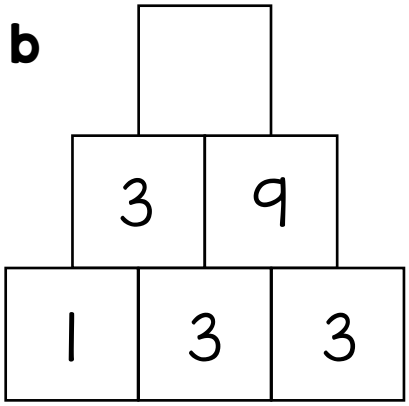
Division

1 Complete the pyramids using multiplication and division.

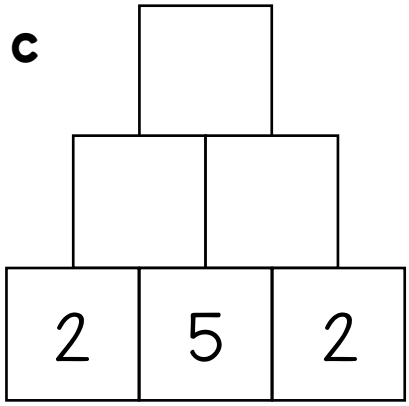
a



b



c



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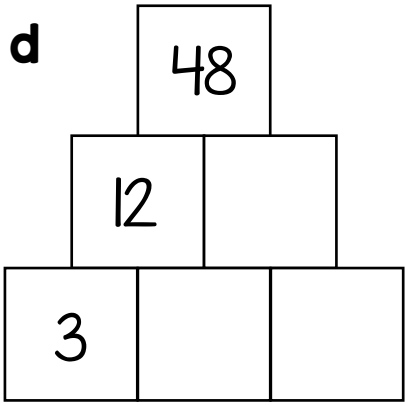

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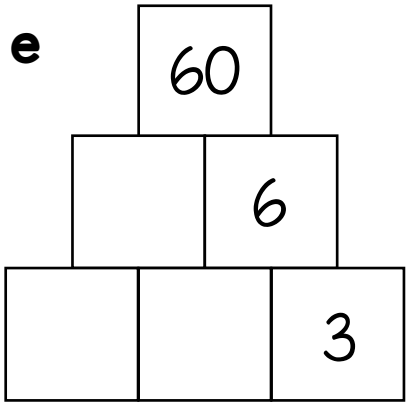

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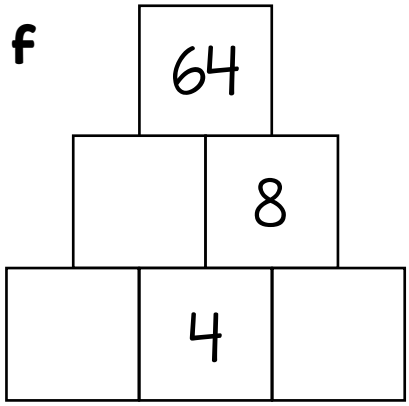

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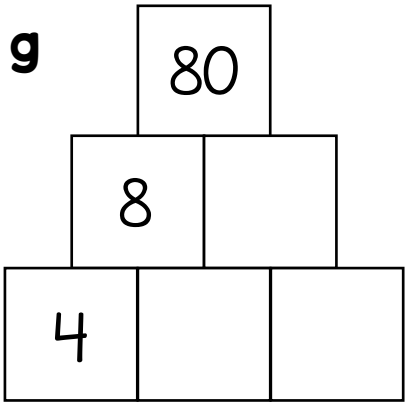

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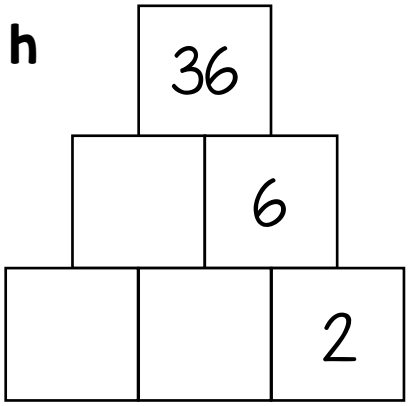

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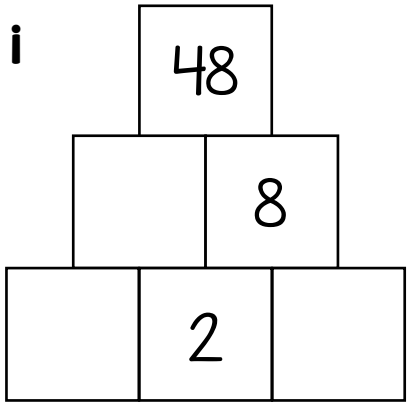

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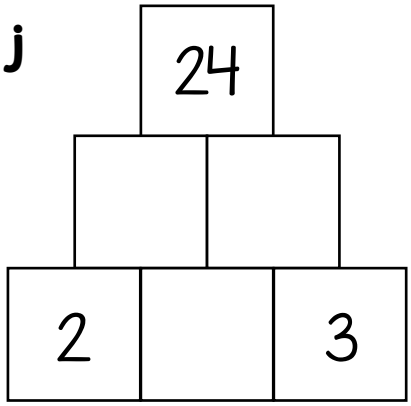
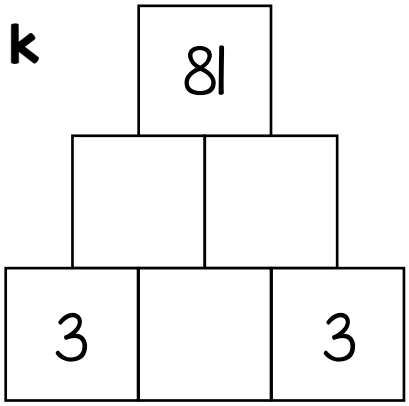
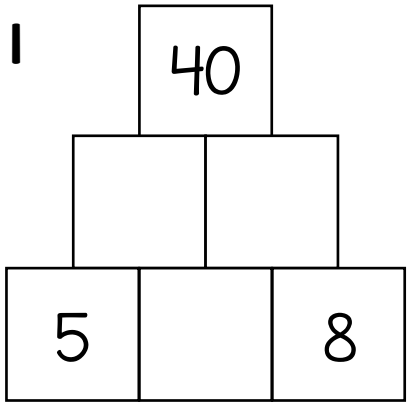


k



l



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Inverse operations

Number fact families

1 What number completes the pairs of inverse operations?

a 3 × 4 = ____ ____ ÷ 4 = 3

b 6 × ____ = 30 30 ÷ ____ = 6

c 9 × 8 = ____ ____ ÷ 8 = 9

d 4 × ____ = 36 36 ÷ ____ = 4

e ____ × 10 = 70 70 ÷ 10 = ____

f ____ × 7 = 56 56 ÷ 7 = ____

2 Write the inverse operation.

a 6 × 10 = 60 _____

b 48 ÷ 8 = 6 _____

c 3 × 5 = 15 _____

d 20 ÷ 4 = 5 _____

e 7 × 9 = 63 _____

f 100 ÷ 10 = 10 _____

3 Complete the number fact families.

a 5 × 7 = ____

7 × 5 = ____

____ ÷ 5 = 7

____ ÷ 7 = 5

b 4 × 8 = ____

____ × ____ = ____

____ ÷ ____ = ____

____ ÷ 4 = 8

c 6 × 9 = ____

____ × ____ = ____

____ ÷ ____ = ____

____ ÷ ____ = ____

d ____ × ____ = ____

____ × ____ = ____

42 ÷ 6 = ____

____ ÷ ____ = ____

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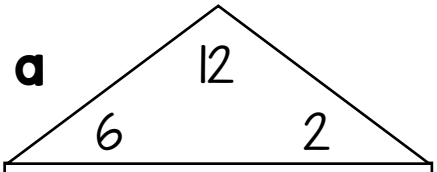
Number fact families 1

1 Complete the number fact families.

a



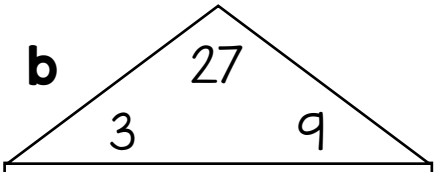
$6 \times 2 = \square$

$2 \times 6 = \square$

$\square \div 6 = 2$

$\square \div 2 = 6$

b



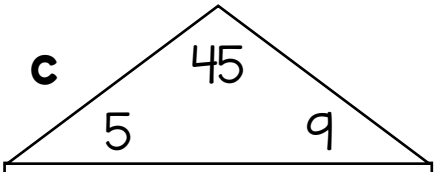
$3 \times \square = 27$

$\square \times 3 = 27$

$27 \div 3 = \square$

$27 \div \square = 3$

c



$\square \times 9 = 45$

$9 \times \square = 45$

$45 \div \square = 9$

$45 \div 9 = \square$

2 Complete the related sums.

a $3 \times 4 = \square$

$4 \times \square = 12$

$12 \div \square = 4$

$\square \div 4 = 3$

b $9 \times 2 = \square$

$2 \times \square = 18$

$18 \div \square = 2$

$\square \div 2 = 9$

c $5 \times 8 = \square$

$8 \times \square = 40$

$40 \div \square = 8$

$\square \div 8 = 5$

d $7 \times 10 = \square$

$\square \times 7 = 70$

$\square \div 7 = 10$

$70 \div \square = 7$

e $6 \times 9 = \square$

$\square \times 6 = 54$

$\square \div 6 = 9$

$54 \div \square = 6$

f $5 \times 7 = \square$

$\square \times 5 = 35$

$\square \div 5 = 7$

$35 \div \square = 5$

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Number fact families 2

Complete the number fact families.

1 a 5 × 6 = 30

□ × □ = □

□ ÷ □ = □

□ ÷ □ = □

b 4 × 7 = 28

□ × □ = □

□ ÷ □ = □

□ ÷ □ = □

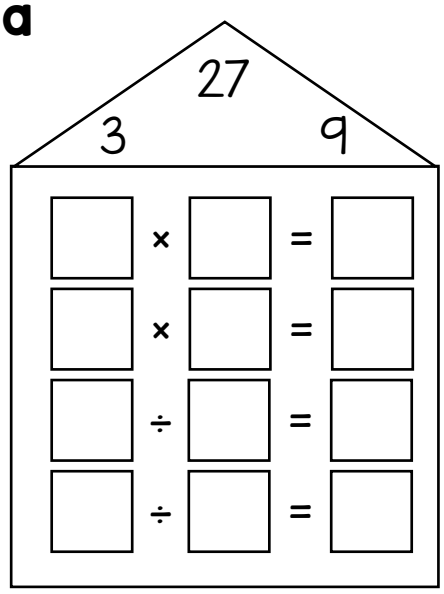
c 8 × 9 = 72

□ × □ = □

□ ÷ □ = □

□ ÷ □ = □

2 a



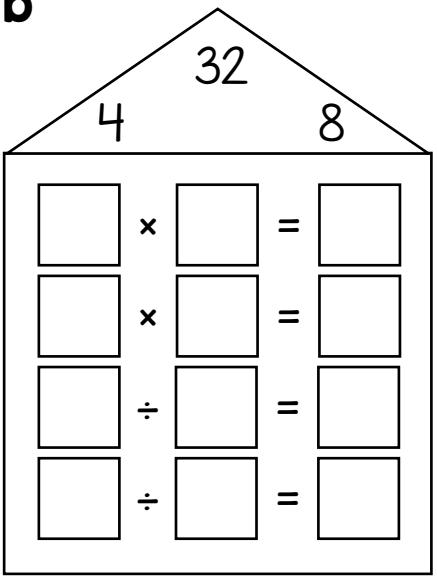
□ × □ = □

□ × □ = □

□ ÷ □ = □

□ ÷ □ = □

b



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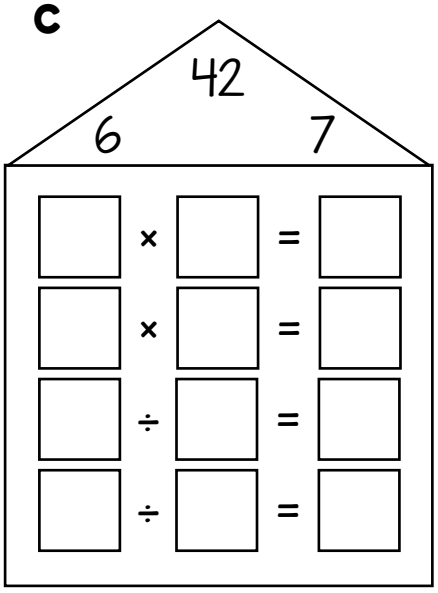

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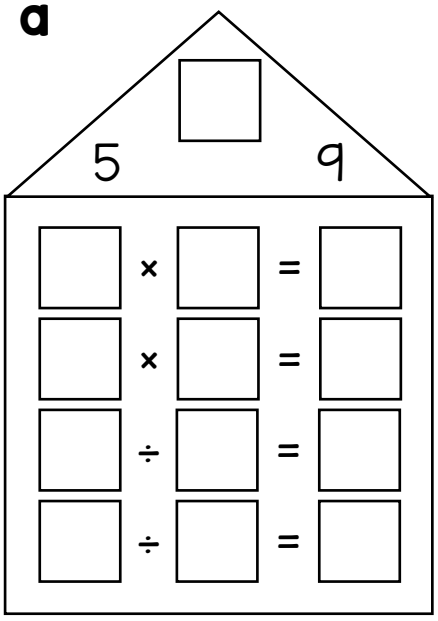
3 a



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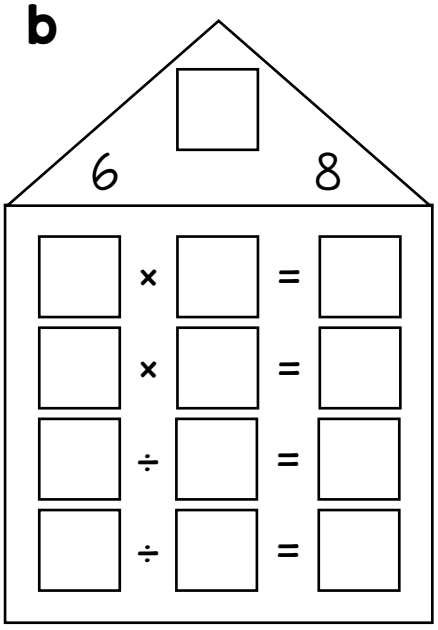
b



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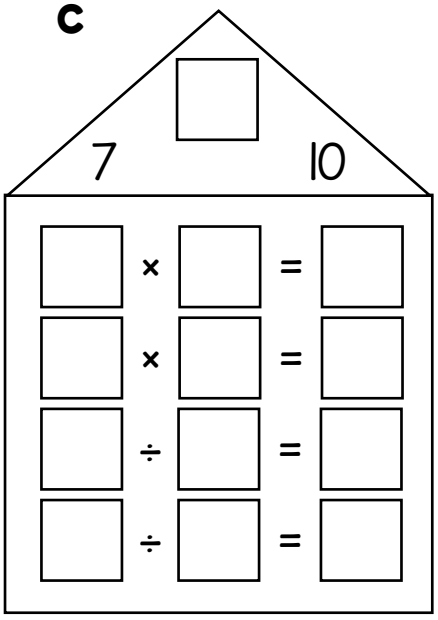

□ × □ = □

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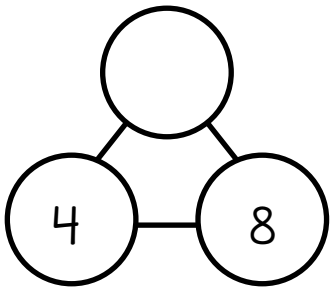
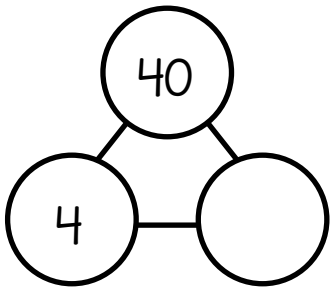
Number mountains

1 Complete the number mountains.

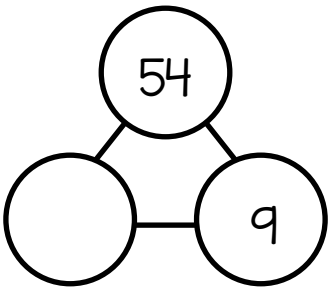
a



b



c



2 Write a number fact family for each number mountain above.

a

	×		=				
	×		=				
	÷		=				
	÷		=				

b

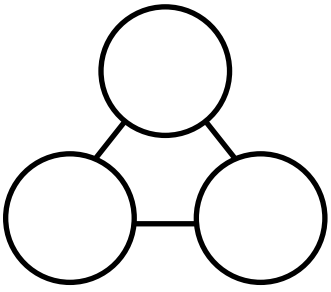
	×		=				
	×		=				
	÷		=				
	÷		=				

c

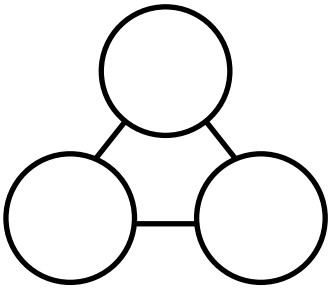
	×		=				
	×		=				
	÷		=				
	÷		=				

3 Fill in a number mountain for each equation.

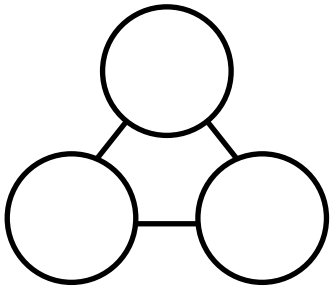
a 42 ÷ 7 = ☐



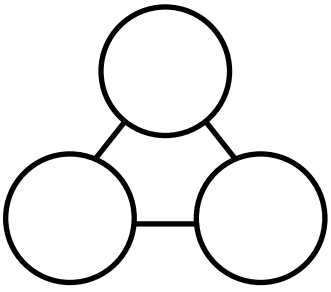
b 45 ÷ 9 = ☐



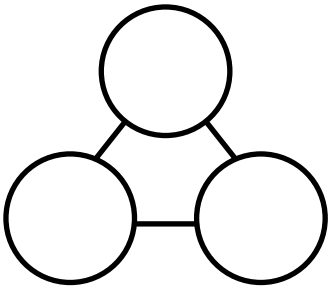
c 48 ÷ 8 = ☐



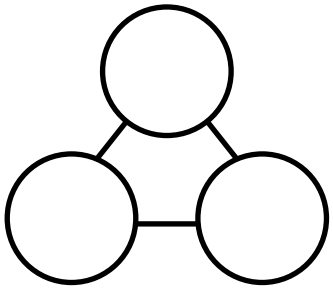
d 30 ÷ 6 = ☐



e 36 ÷ 9 = ☐



f 35 ÷ 7 = ☐



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Missing numbers

Number fact families

1 Complete the related sums.

a $3 \times 6 = \square$

$6 \times \square = 18$

$18 \div \square = 6$

$\square \div 6 = 3$

b $7 \times 5 = \square$

$5 \times \square = 35$

$35 \div \square = 5$

$\square \div 5 = 7$

c $9 \times 4 = \square$

$4 \times \square = 36$

$36 \div \square = 4$

$\square \div 4 = 9$

d $8 \times 7 = \square$

$7 \times \square = 56$

$56 \div \square = 7$

$\square \div 7 = 8$

e $5 \times 10 = \square$

$10 \times \square = 50$

$50 \div \square = 10$

$\square \div 10 = 5$

f $3 \times 8 = \square$

$8 \times \square = 24$

$24 \div \square = 8$

$\square \div 8 = 3$

2 Use related facts to help you find the missing numbers.

a $63 \div \square = 9$

b $\square \div 4 = 6$

c $40 \div \square = 5$

d $\square \div 9 = 6$

e $21 \div \square = 3$

f $\square \div 9 = 10$

g $20 \div \square = 4$

h $\square \div 5 = 3$

i $30 \div \square = 3$

j $\square \div 9 = 8$

k $80 \div \square = 10$

l $\square \div 7 = 7$

m $64 \div \square = 8$

n $\square \div 7 = 4$

o $60 \div \square = 6$

p $\square \div 5 = 9$

q $48 \div \square = 6$

r $\square \div 6 = 6$

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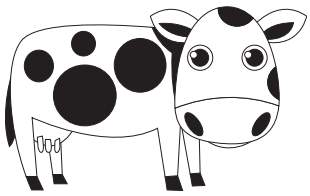
Number fact problems

Number fact families

Use your number fact knowledge to answer these problems. Show your working.

1 The farmer has eighty-one peaches to pack into boxes. Each box holds nine peaches. How many boxes does the farmer need? _____

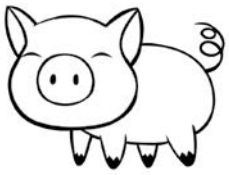
2 The cows are herded into groups of ten. There are seventy cows altogether. How many groups are there? _____



3 Tom can shear nine sheep a day. There are sixty-three sheep to shear. How many days will it take? _____

4 It takes seven hours to harvest a field of wheat. Mia has spent a total of fifty-six hours harvesting. How many fields has she harvested? _____

5 The pigs eat twenty-five kilograms of food every day. They get five kilos each. How many pigs are there? _____



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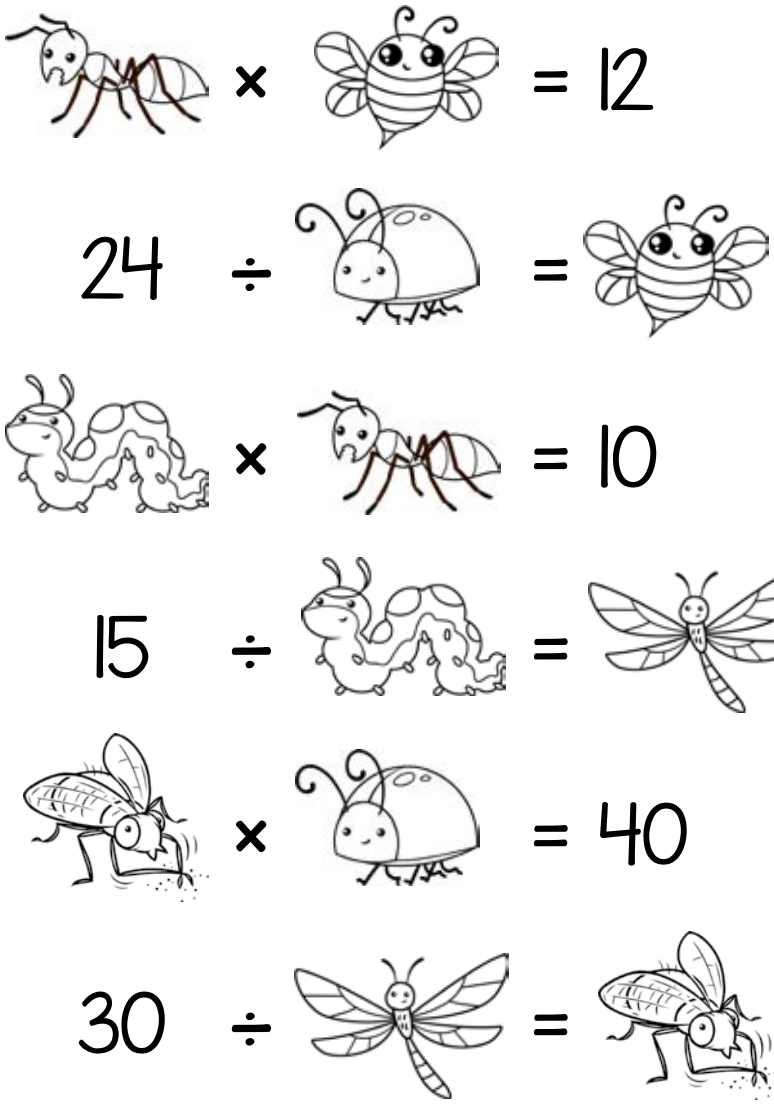
Operations puzzle

Can you work out which number each bug represents?



a = _____

b = _____

c = _____

d = _____

e = _____

f = _____

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2-step multiplications

a Solve the first step. **b** What is the next step?
c Draw an array and solve the problem.

1 Dottie played 2 games of scrabble with her dad 3 nights a week for 4 weeks. How many games of scrabble did she play?

a 2 × ___ = ___ **b** ___ × ___ **c** ___ games of scrabble

2 Robby eats 2 sandwiches for lunch every school day. The school terms goes for 10 weeks. How many sandwiches does Robby eat at school in one term?

a 2 × ___ = ___ **b** ___ × ___ **c** ___ sandwiches

3 Lottie played 2 games of soccer every Saturday and 2 games of netball every Sunday. Over 8 weeks, how many games of sport did she play?

a 2 × ___ = ___ **b** ___ × ___ **c** ___ games of sport

4 Bobby has 5 shelves of shoes. Each shelf holds 4 shoe boxes. Each box holds a pair of shoes. How many shoes in total?

a 5 × ___ = ___ **b** ___ × ___ **c** ___ shoes

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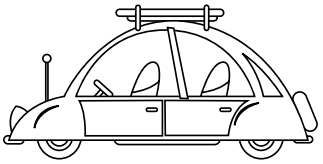
Multiplication algorithms

1 Write an algorithm to solve each problem.

a Chris books six taxis to take her and her friends to lunch. Four people get in each taxi. How many people are going to lunch?

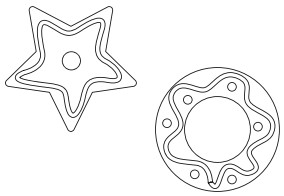
×

b Naomi can fix five cars in a day. If she works all seven days one week, how many cars can she fix in that week?



×

c Amos buys nine boxes of biscuits. There are eight biscuits in each box. How many biscuits does Amos have?



×

d Alex bought six packets of beads for his daughter. Each packet holds nine beads. How many beads altogether?

×

2 Write two algorithms to solve each problem.

a James ordered three crates of apples. Each crate holds three trays. Each tray holds nine apples. How many apples altogether?

× ×

b Julie has a big library. She has two sets of book shelves with five shelves each. Each shelf holds seven books. How many books does Julie have?

× ×

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Multiply 3 numbers

1 Match the items to their boxes. Fill in the equations.

a 3 stacks of 4 books each.

____ × ____ = ____

b 4 piles with 4 t-shirts in each pile.

____ × ____ = ____

c 5 packets each holding 4 bags of 10 pencils.

____ × ____ × ____ = ____

d 4 bags with 2 bundles of 7 carrots in each bag.

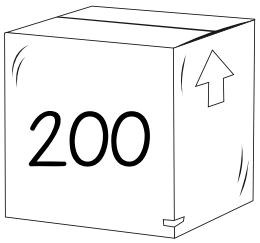
____ × ____ × ____ = ____

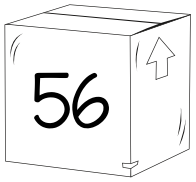
e 2 sacks each with 3 bags holding 8 balls.

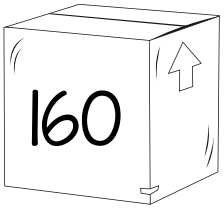
____ × ____ × ____ = ____

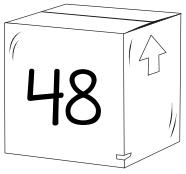
f 20 cartons holding 4 rows of 2 cans each.

____ × ____ × ____ = ____









2 Complete.

a 2 × 5 × ____ = 60

b 3 × ____ × 4 = 120

c ____ × 2 × 4 = 64

d 4 × 5 × ____ = 40

e 5 × ____ × 5 = 100

f ____ × 8 × 8 = 640

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3 factor problems

1 Write the equation and find the answer.

a Peter makes two pots an hour. He works for five hours a day. How many pots does he make in ten days?

____ × ____ × ____ = ____

b Gam rides for ten kilometres in an hour. She rides for two hours a day. How many kilometres does she travel in four days?

____ × ____ × ____ = ____

c Dax packs cans into boxes. He fits eight rows of five cans into the bottom of each box, and a second layer of cans on top. How many cans are in each box?

____ × ____ × ____ = ____

d Rocky is organising his books. He has two bookcases. Each has six shelves. He can fit twenty books on each shelf. How many books fit into his bookcases?

____ × ____ × ____ = ____

2 Find the answer.

a Groot plants ten rows of trees in a day. Each row has ten trees in it. He does this for five days. How many trees have been planted? ____

b Ronan baked two trays of muffins. Each tray had three rows of five muffins in it. How many muffins did he bake? ____

c Yon has a collection of statues. He has three shelves with three rows of eight statues on each shelf. How many statues altogether? ____

d Bula drives to work and back every day. One way, the trip is fifty kilometres. How many kilometres does she drive in five days? ____

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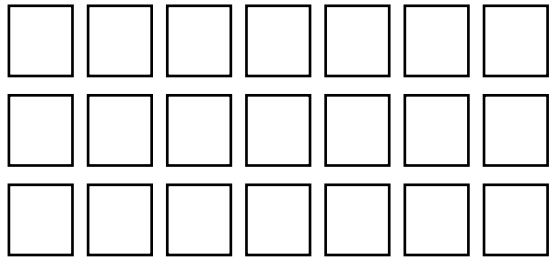
Distribution strategy

1 Colour the arrays to show the two sums.
Then find the answers.

a

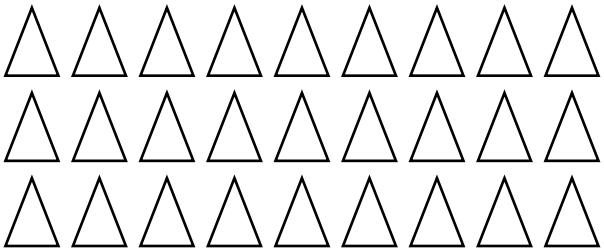


5 × 3 + 2 × 3 =

____ + ____ = ____

7 × 3 = ____

b

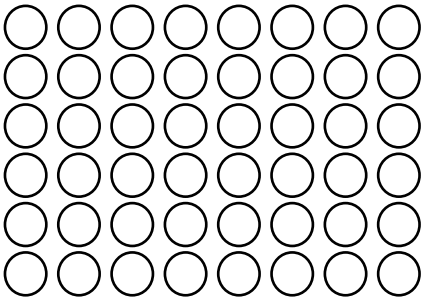


5 × 3 + 4 × 3 =

____ + ____ = ____

9 × 3 = ____

c

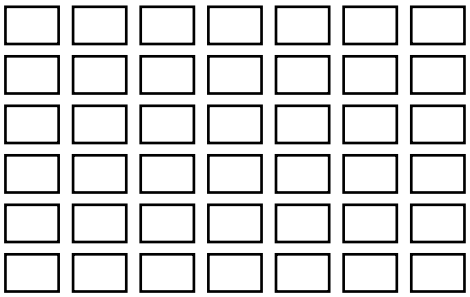


4 × 6 + 4 × 6 =

____ + ____ = ____

8 × 6 = ____

d



5 × 6 + 2 × 6 =

____ + ____ = ____

7 × 6 = ____

2 Complete the equations.

a 8 × 9 =

___ × 9 + ___ × 9 =

___ + ___ = ___

b 7 × 9 =

___ × 9 + ___ × 9 =

___ + ___ = ___

c 7 × 8 =

___ × ___ + ___ × ___ =

___ + ___ = ___

d 8 × 8 =

___ × ___ + ___ × ___ =

___ + ___ = ___

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Split one factor

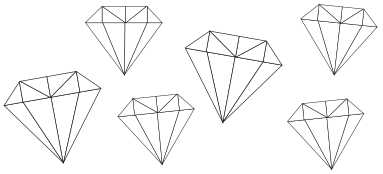
1 Split one factor to make easier sums and find the answer.

a Ming scored 9 points on the dart board 9 times. How many points did he score altogether? ____

b Dale found 6 blocks of iron in 8 different places. How many blocks of iron does she have now? ____

c Gordon knocked down 8 bowling pins 7 times. How many pins knocked down in total? ____

d Aura won 7 chests each with 6 gems in them. How many gems did she collect? ____



2 Find the answer.

a Hans ordered 7 pizzas. Each pizza had 9 olives on it. Hans picked them all off. How many was that? ____

b Vultan put 6 little tomatoes on each of 6 plates. How many tomatoes did he use in total? ____

c Barin ate 7 cherries every day for a week. How many cherries did Barin eat in that week? ____

d Kala put 8 rice crackers in each of 8 lunch bags. How many rice crackers did she use? ____

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Multiply by 10

1 Answer the algorithms.

a

Tens	Ones
	3
× 1	0

b

Tens	Ones
	8
× 1	0

c

Tens	Ones
	6
× 1	0

d

H	T	O
	4	2
×	1	0

e

H	T	O
	5	7
×	1	0

f

H	T	O
	1	9
×	1	0

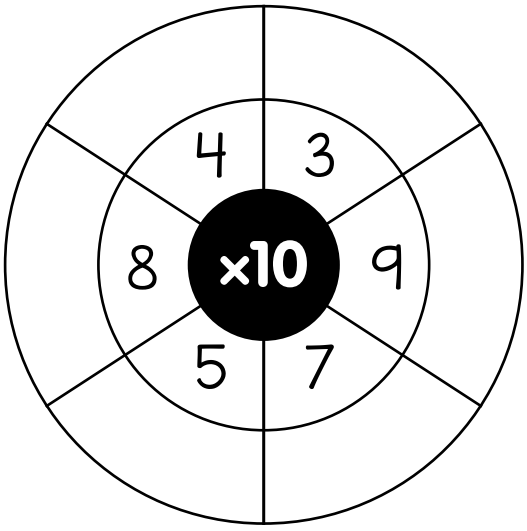
2 Answer the equations.

a 23 × 10 = _____ **b** 76 × 10 = _____ **c** 38 × 10 = _____

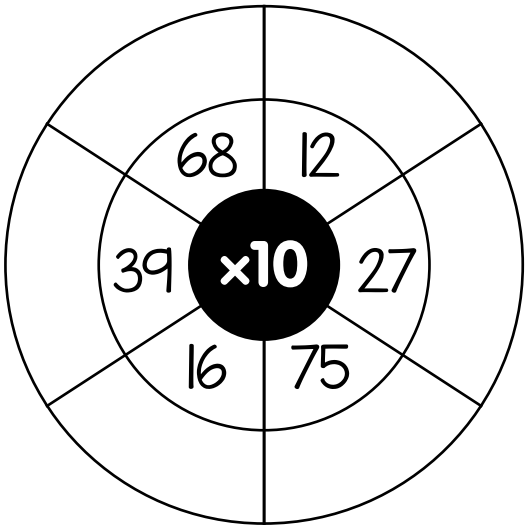
d 69 × 10 = _____ **e** 81 × 10 = _____ **f** 94 × 10 = _____

3 Complete.

a



b



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Multiply by multiples of 10

1 Split the multiple of ten to find the answer.

a 2 × 30 = 2 × 3 = ____ × 10 = ____

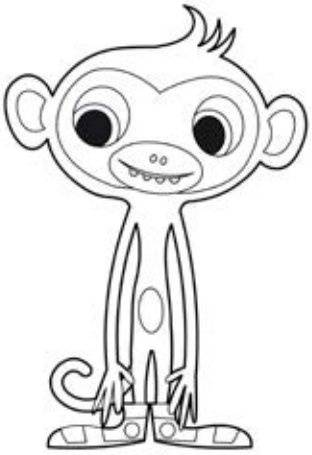
b 5 × 20 = 5 × 2 = ____ × 10 = ____

c 4 × 40 = 4 × ____ = ____ × 10 = ____

d 7 × 50 = 7 × ____ = ____ × 10 = ____

e 3 × 80 = _____

f 6 × 60 = _____

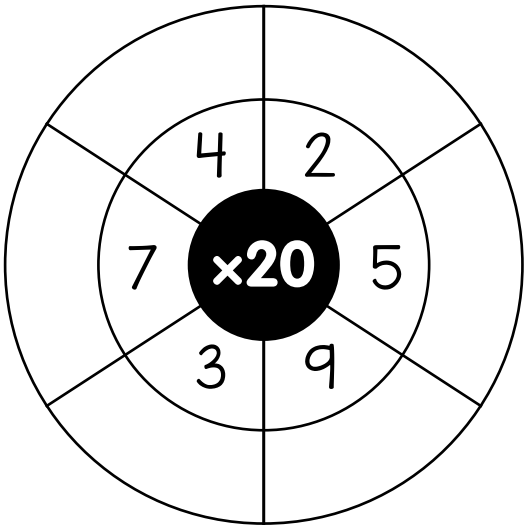


2 Answer the equations.

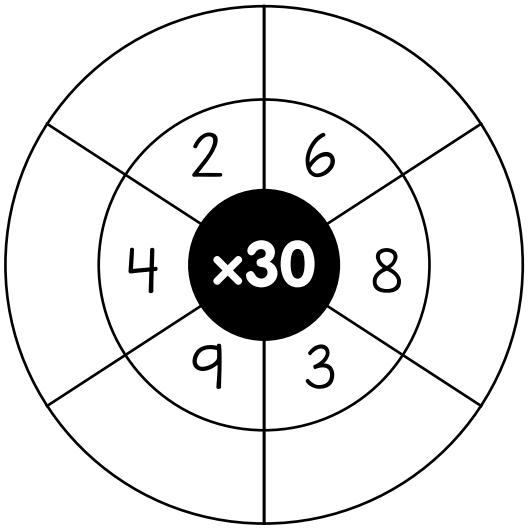
a 9 × 20 = _____	**b** 7 × 40 = _____	**c** 8 × 50 = _____
d 3 × 70 = _____	**e** 5 × 90 = _____	**f** 6 × 30 = _____
g 4 × 60 = _____	**h** 5 × 80 = _____	**i** 3 × 30 = _____
j 7 × 80 = _____	**k** 2 × 50 = _____	**l** 9 × 40 = _____

3 Complete.

a



b



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Multiplication strategy problems

Multiplication strategies

Calculate the answers. Show your working.

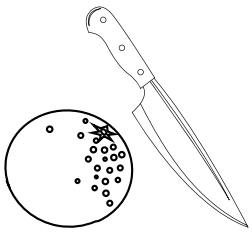
1 Doc sees that there are twenty socks in each sock box. There are eight boxes of socks. How many socks altogether?

2 Dizzy has thirty bags of shirts in the storeroom. There are nine shirts in each bag. How many shirts in total?

3 Mango kicked four goals in every game this year. She played twenty games. How many goals did she kick over the year?

4 Mrs T makes the players run 50 m. Then she tells them to do it nine times altogether. How far did they run in total?

5 Ruby cuts up the oranges for half time. She cuts each orange into eight slices and she has a bag of thirty oranges to cut. How many orange slices will there be?



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Write your own problems

Multiplication strategies

a Fill in the missing names, numbers and items to write your own word problems.

b Swap with a friend and solve each other's word problems.

1 **a** _____ buys ____ packets of _____.
Each pack holds _____.
How many _____ altogether?

b

2 **a** _____ runs ____ kilometres a day. How many kilometres do they run in ____ days?

b

3 **a** _____ eats ____ _____ at lunch every day. How many _____ do they eat in a week?

b

4 **a** _____ plays ____ games of _____ every weekday.
How many games of _____ are played in ____ weeks?

b

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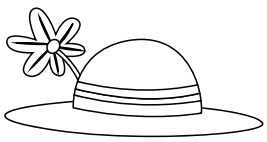
Which operation?

Mixed operations problems

a Circle numbers, clues for numbers and clues to the operation.
b Write an equation and calculate the answer.

1 **a** Meg bought a hat for $55 and a belt for $37.
How much did she spend altogether?



b _____

2 **a** Ben has $100 to spend. He got two books for $38.
How much money is left?

b _____

3 **a** Peggy had $80. She shared it equally between herself, her brother and her two sisters. How much did they each get?

b _____

4 **a** Lenny bought six packets of rubber balls for $9 each.
How much did he spend in total?

b _____

5 **a** Deb has fifty $1 coins. She made ten equal groups of coins.
How much is each group worth?

b _____

6 **a** Ted was given $50 for his birthday. He already had $30.
Then he spent $60. How much is left?

b _____

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1-step problems

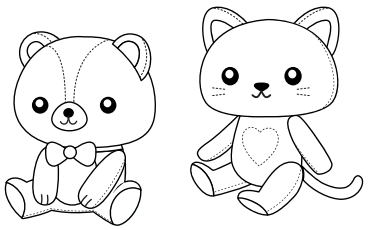
Mixed operations problems

1 Alex has five good friends and she bought each of them four books. How many books did she buy in total?

a Which operation? + − × ÷

b ☐ ☐ ☐ = ☐

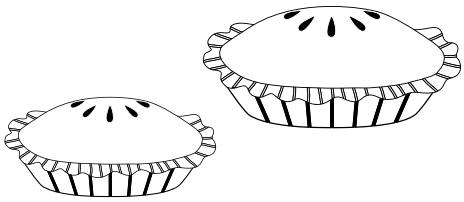
2 Juliet has ten stuffed cats and twelve soft dolls. How many soft toys altogether?



a Which operation? + − × ÷

b ☐ ☐ ☐ = ☐

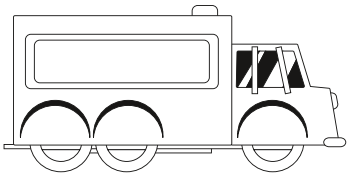
3 Zahra cooked 24 pies. She shared them out to eight people. How many pies did each person get?



a Which operation? + − × ÷

b ☐ ☐ ☐ = ☐

4 Jake had forty toy trucks. He gave away eighteen. How many trucks left?



a Which operation? + − × ÷

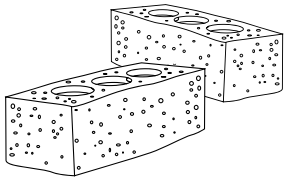
b ☐ ☐ ☐ = ☐

5 Noah walks ten minutes to school every weekday morning. How much time does he spend walking to school in a week?

a Which operation? + − × ÷

b ☐ ☐ ☐ = ☐

6 Elijah needs fifty redstone blocks to build a house. He has thirty-three so far. How many more does he need?



a Which operation? + − × ÷

b ☐ ☐ ☐ = ☐

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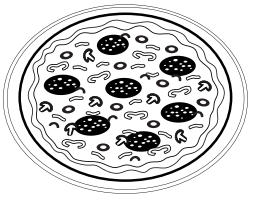
2-step problems 1

Mixed operations problems

Write 2 equations to solve these problems.

1 Dizzy made five pepperoni pizzas. He cut them into eight slices each and then shared them equally between himself, Ruby, Mango and Waldo. How many slices did each person get?



a _____ **b** _____

2 Mrs T made 18 cactus burritos. Yum! She put an equal number on plates for herself, cousin Carlotta and Doc. Doc and Mrs T ate all of theirs, but Carlotta only ate four. How many are left?

a _____ **b** _____

3 Mango picked 30 apples and shared them equally into five buckets. Next she gave two buckets to Carlotta. She kept the other buckets. How many apples did Mango keep?

a _____ **b** _____

4 Waldo caught 17 fish on Saturday and 19 on Sunday. On Monday night he put them in equal groups on six skewers and cooked them all up. How many fish were on each skewer?

a _____ **b** _____

5 Ruby shared 44 crackers equally between herself and Dizzy. Then Mrs T gave her 7 more. How many crackers does Ruby have now?

a _____ **b** _____

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2-step problems 2

Mixed operations problems

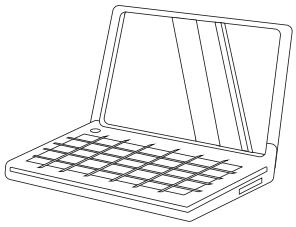
Calculate the answers. Show your working.

1 Mr Towers has thirty students in his science class. He gives each student four test tubes and five beakers. How many items has he handed out in total?

2 Mrs Fox has to mark four essays from every student she teaches. Her two English classes both have twenty students in them. How many essays is that altogether?

3 Ms Deacon takes two classes for circus arts on Friday afternoon. One class is twenty-five students and the other is thirty-five. If she plans to give each student three juggling pins, how many pins will she need?

4 Dr Evans needs to buy new laptops for his school. They want thirty laptops for each class. There are three classes in the lower grades and four classes in the upper grades. How many new laptops is that?



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3-step problems

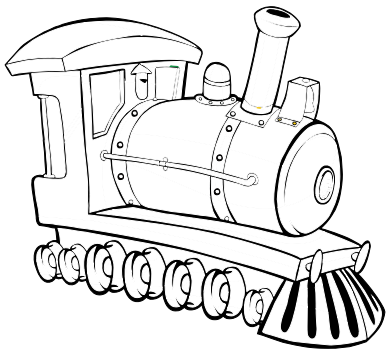
Mixed operations problems

Greg has a huge trainset. He has three sets of four bridge pieces. He also has 21 straight pieces and 27 curved pieces of track. If he wants to divide it into three smaller but equally sized trainsets, how many pieces will be in each smaller set?

1 Circle the answers.

a What do you need to find in the end?
one of three shares *total number of pieces*

b What do you need to find first?
difference between numbers of pieces
total number of pieces



c How will you do that?
multiply & add *divide & subtract*

d What do you need to do in the end?
add *subtract* *multiply* *divide*

Write the sums and solve the problem.

e ☐ × ☐ = ☐ bridge pieces

f ☐ + ☐ + ☐ = ☐ total pieces

g ☐ ÷ ☐ = ☐ pieces in each smaller set

2 Complete this different approach to the same problem.

a Straight pieces ☐ ÷ 3 = ☐

b Curved pieces ☐ ÷ 3 = ☐

c Bridge pieces in one set = ☐ +

d Pieces in each smaller set = ☐

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Multi-step problems

Mixed operations problems

Solve the problems. Show your working.

1 Quinn has to put together a play list for the party. He merges two lists - there are 37 songs in the rock list and 53 songs in the pop list. The play list is three hours long. How many minutes long is each song?

2 Ling wants fairy lights all the way along the 90 m fence. She borrows two 12 m strings of lights from Rin. How many 11 m lengths of lights does Ling need to buy to finish the job?

3 Minh needs to make 45 invitations. She has made 21 already. It takes her ten minutes to make two invitations. How long will it take Minh to make the rest?

4 Pina is baking cupcakes. She does 12 in each batch and each batch takes 30 minutes. Plus she needs an extra 10 minutes per batch to decorate them. If she aims to make 72 cupcakes, how long will it take altogether?

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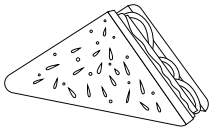
Mixed problems

Mixed operations problems

Solve these problems. Show your working. Write the sums.

1 Mara spends 30 hours a week at school. Each day her lunch break is 40 mins and her recess break is 20 mins. How many hours a day are actually spent in class?



2 Phil has a big collection of records. He has 32 jazz albums, 19 blues ones and 15 rock records. He has six storage boxes, each holding an equal number of records. How many records in each box?

3 Every morning Amy walks 500 m to the supermarket for groceries. Then she walks 200 m to the café for a milkshake and then she walks 300 m to the post office. After that she walks home the same way. How far in metres does she walk? Can you work out how far that is in kilometres?

4 Mark is editing ten books. Each book is thirty pages long. Each page takes two minutes to edit. How much time in minutes does Mark spend editing these books? Can you work out that time in hours?

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Guess who?

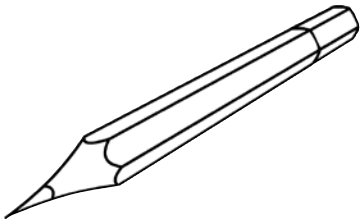
Mixed operations problems

Play in pairs ☺☺. You will both need a pen and paper.

1. You each draw up a 2 x 10 grid and write the numbers 1 to 20 in it. Or use the example below. Hide your sheet from the other person.
2. Both players choose a number in their grid and circle it.
3. Take turns asking questions until you work out what your opponent's number is. The question types are:

   Can it be divided by _____?

   Is it in the _____ times table?



4. Cross out numbers that don't fit. For example:

   Can it be divided by 2? No. So cross out all the <u>even</u> numbers, which <u>can</u> be divided by 2.

   Is it in the 5 times table? Yes. So cross out all the numbers <u>not</u> in the 5 times table.

5. When you know what your opponent's number is, on your next turn you can guess the number.

   The winner is the first to guess the other's number correctly.

<u>Variations:</u> Use a different section of a 100 chart *(see page 58)*. Use the whole 100 chart to make it much harder.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

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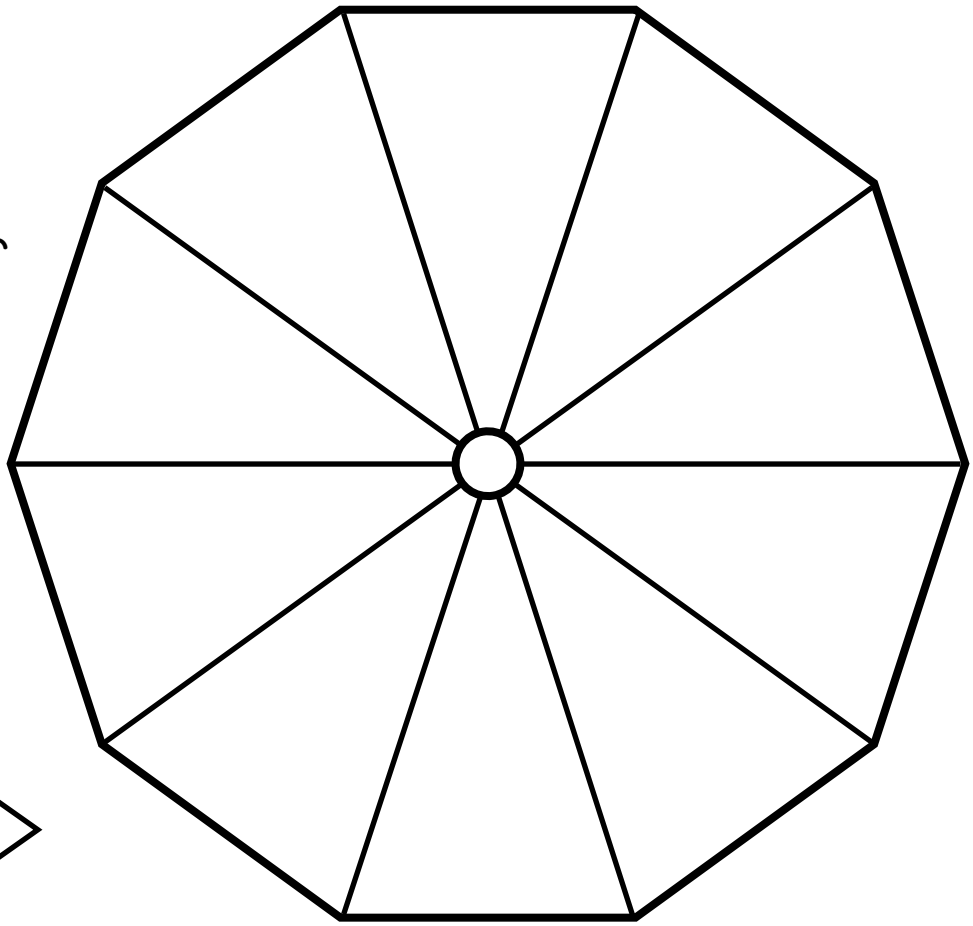
10-sided spinner

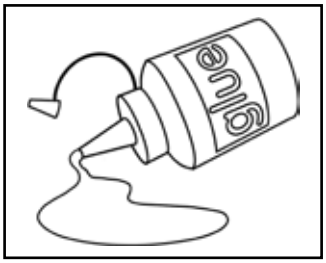
Resources

Materials:

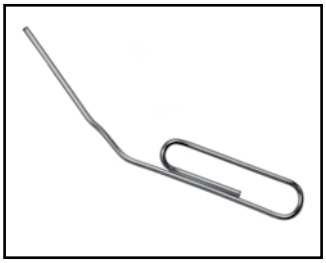
- cardboard
- paper clip
- paper fastener (split pin)
- sticky tape
- scissors.



1 Print or glue the spinner and the arrow onto cardboard. Write on the numbers 1–10 or the letters A–J. You could laminate them to make them last longer.

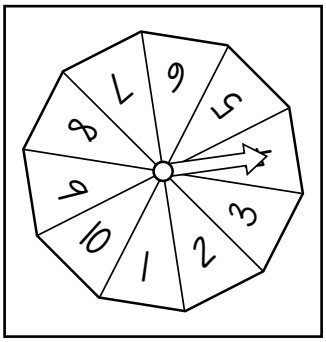


2 Bend out one end of the paper clip to make the spinning pointer.



3 Insert the split pin with the paper clip on it through the centre of the spinner.

4 Split the back of the pin and tape the ends down. The top of the split pin should sit about 1 cm above the card to allow the paper clip pointer to spin freely.



5 Tape the arrow onto the paper clip.

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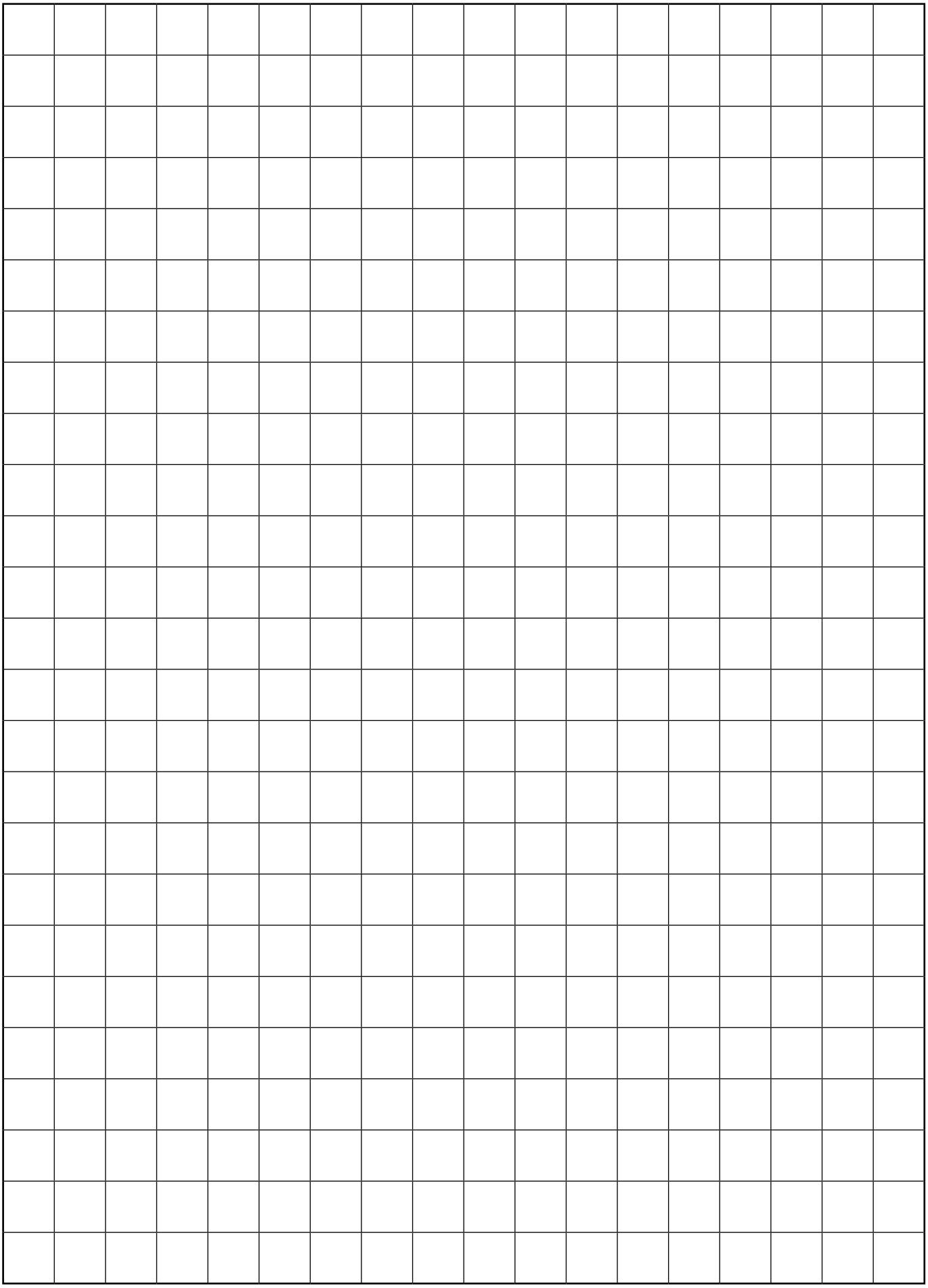
Grid paper



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100 chart

Resources

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

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