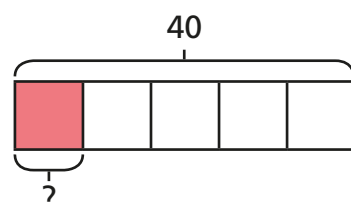


# Find a fraction of a given amount



- 1 a) How does the bar model represent the calculation?

$$\frac{1}{5} \text{ of } 40$$

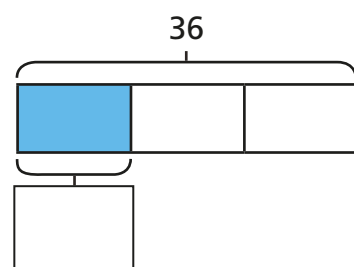


- b) Complete the calculation.

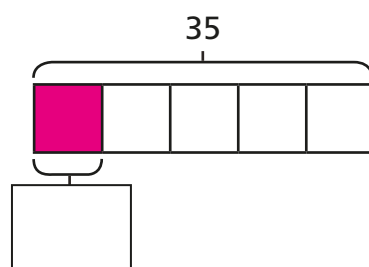
$$\frac{1}{5} \text{ of } 40 = \boxed{\phantom{00}}$$

- 2 Use the bar models to help you complete the calculations.

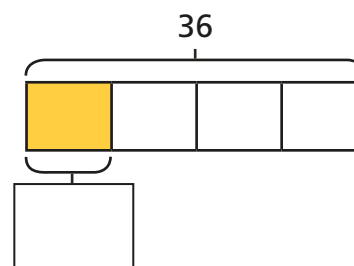
a)  $\frac{1}{3}$  of 36 =  $\boxed{\phantom{00}}$



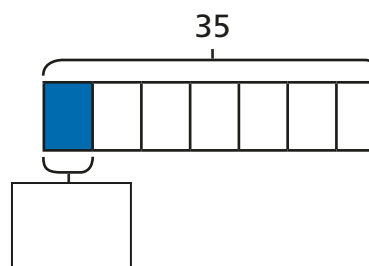
c)  $\frac{1}{5}$  of 35 =  $\boxed{\phantom{00}}$



b)  $\frac{1}{4}$  of 36 =  $\boxed{\phantom{00}}$

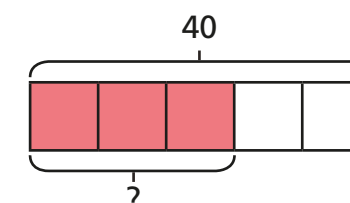


d)  $\frac{1}{7}$  of 35 =  $\boxed{\phantom{00}}$



- 3 a) How does the bar model represent the calculation?

$$\frac{3}{5} \text{ of } 40$$

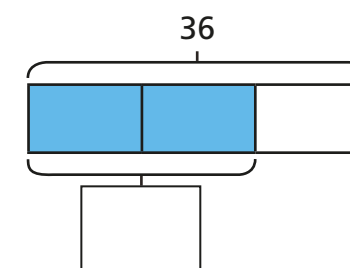


- b) Complete the calculation.

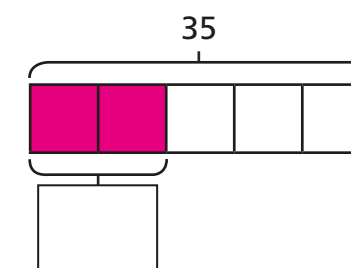
$$\frac{3}{5} \text{ of } 40 = \boxed{\phantom{00}}$$

- 4 Use the bar models to help you complete the calculations.

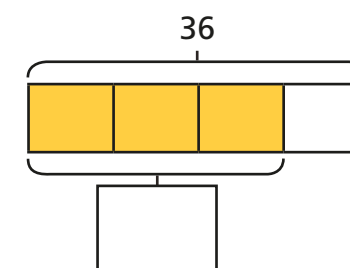
a)  $\frac{2}{3}$  of 36 =  $\boxed{\phantom{00}}$



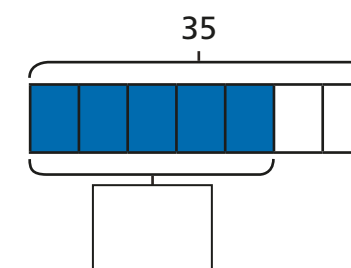
c)  $\frac{2}{5}$  of 35 =  $\boxed{\phantom{00}}$



b)  $\frac{3}{4}$  of 36 =  $\boxed{\phantom{00}}$



d)  $\frac{5}{7}$  of 35 =  $\boxed{\phantom{00}}$



5 Complete the calculations.

a)  $\frac{1}{5}$  of 630 lb =

b)  $\frac{2}{5}$  of 1,260 g =

c)  $\frac{5}{8}$  of 760 m =

d)  $\frac{7}{9}$  of 8.1 km =

e)  $\frac{11}{9}$  of 8.1 km =

6 Nijah has 45 stickers.

She gives  $\frac{2}{5}$  to her sister.

She gives  $\frac{1}{3}$  of her remaining stickers to Brett.

How many stickers does Nijah have left?



7 Whitney has a box of milk and dark chocolates.

$\frac{6}{11}$  of the chocolates are milk chocolate.

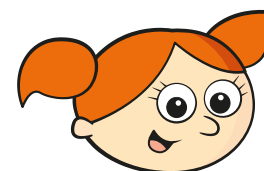
There are 15 dark chocolates in the box.

a) How many milk chocolates are in the box?

b) If Whitney eats 3 milk chocolates, what fraction of the chocolates left are dark chocolate?

8 A box usually contains 500 g of cereal.

The manufacturers increase the amount of cereal in the box by  $\frac{1}{5}$



Alex

To get back to the original 500 g, I would now need to eat  $\frac{1}{5}$  of the cereal in the box.

Alex is incorrect – she would need to eat less than  $\frac{1}{5}$  of the cereal to only have 500 g in the box.



Mo

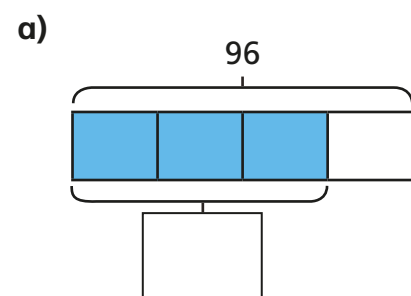
Who is correct? \_\_\_\_\_

Explain your answer to a partner.

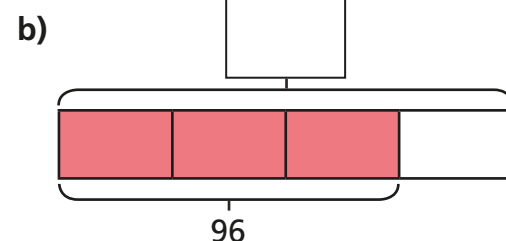


# Use a given fraction to find the whole and/or other fractions

1 Complete the calculations.



$$\frac{3}{4} \text{ of } 96 = \boxed{\phantom{000}}$$

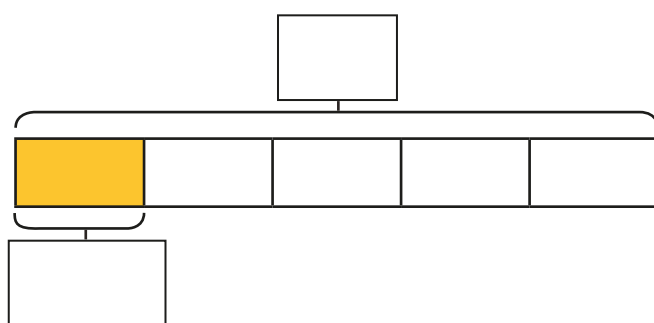


$$\frac{3}{4} \text{ of } \boxed{\phantom{000}} = 96$$

c) What is the same? What is different?

2  $\frac{1}{5}$  of a number is 30

a) Complete the bar model to represent this statement.



b) What is  $\frac{2}{5}$  of the number?  $\boxed{\phantom{000}}$

c) What is  $\frac{3}{5}$  of the number?  $\boxed{\phantom{000}}$

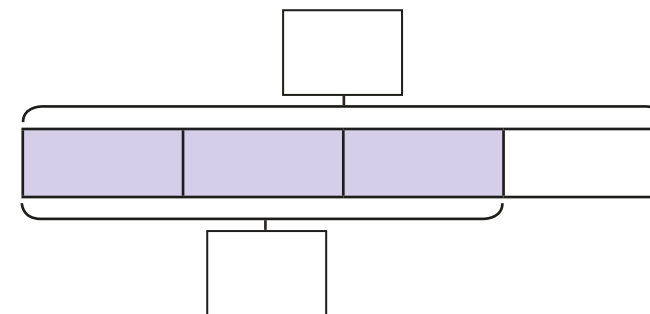
d) What is  $\frac{5}{5}$  of the number?  $\boxed{\phantom{000}}$

e) Complete the calculation.

$$\frac{1}{5} \text{ of } \boxed{\phantom{000}} = 30$$

3  $\frac{3}{4}$  of a number is 24

Complete the bar model to represent this statement.



Complete the calculation.

$$\frac{3}{4} \text{ of } \boxed{\phantom{000}} = 24$$

4 Complete the sentences.

a)  $\frac{1}{4}$  of a number is 8. The value of the whole number is  $\boxed{\phantom{000}}$

b)  $\frac{3}{4}$  of a number is 12. The value of the whole number is  $\boxed{\phantom{000}}$

c)  $\frac{2}{7}$  of a number is 56. The value of the whole number is  $\boxed{\phantom{000}}$

5 Kim scores  $\frac{4}{5}$  of the marks on a test.

Her teacher says, "You only needed 6 more marks to get full marks on the test."

What was the total number of marks available?

$$\boxed{\phantom{000}}$$

- 6 Fill in the missing numbers to make each statement correct.

a)  $\frac{2}{3}$  of  =  $\frac{3}{4}$  of 24

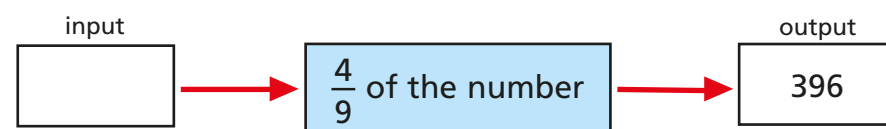
c)  $\frac{\text{input}}{6}$  of 54 = 54

b)  $\frac{5}{7}$  of 560 =  $\frac{4}{5}$  of

d)  $\frac{5}{8}$  of  =  $\frac{3}{5}$  of

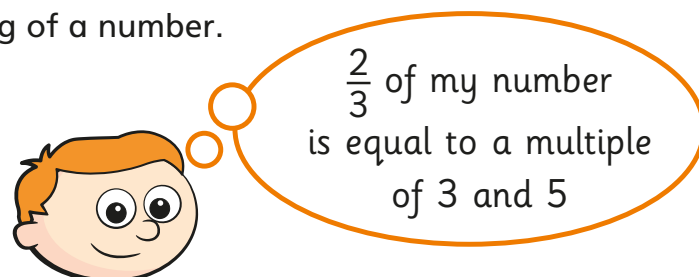
Can you find more than one possible answer for part d)?

- 7 Find the input of this function machine.



The input is

- 8 Ron is thinking of a number.



What number could Ron be thinking of?

Can you find more than one possible answer?

- 9 Esther has some money.

She saves £7.50 and then spends  $\frac{3}{5}$  of what is left.

She now has £21

How much money did Esther have to start with?

- 10  $\frac{5}{12}$  of an expression is 60y.

What is the expression?

\_\_\_\_\_

- 11 Filip has written a linear sequence.

He says that  $\frac{5}{6}$  of the 2nd term in the sequence is 20, and that half of the 4th term is 17

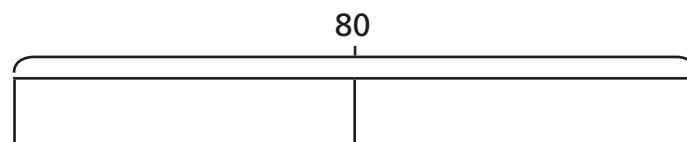
Find the first four terms in the sequence.

 ,  ,  ,

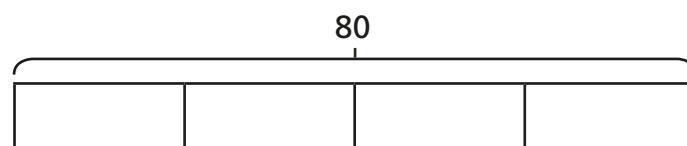
# Find a percentage of a given amount using mental methods

1 Match the percentage calculations to the bar models.

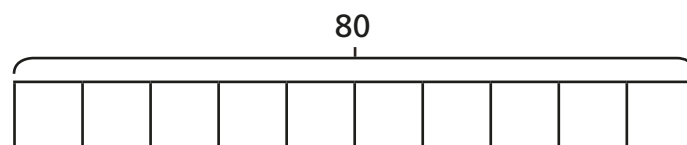
10% of 80



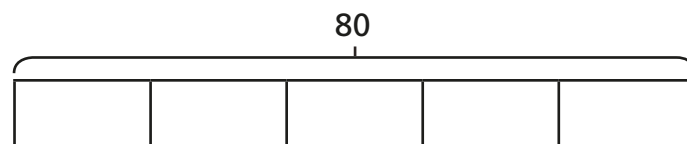
20% of 80



25% of 80



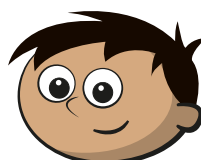
50% of 80



Explain how the models can help with each question.

2

To find 10% of a number you divide by 10, so to find 5% of a number you divide by 5



Is Amir correct? \_\_\_\_\_

Explain your reasoning.

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3 Complete the calculations.

50% of £150 =

20% of £150 =

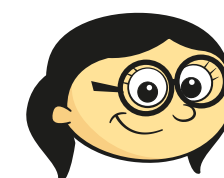
25% of £150 =

10% of £150 =

75% of £150 =

5% of £150 =

4



To find 75% of a number, you can work out 25% and multiply this value by 3

How many other ways could you find 75% of a number?

5

Use the calculations on the right to help you work out the calculations on the left.

a) 3% of 1,020 =

1% of 1,020 = 10.2

b) 3% of 781 =

6% of 781 = 46.86

c) 70% of 4,320 =

7% of 4,320 = 302.4

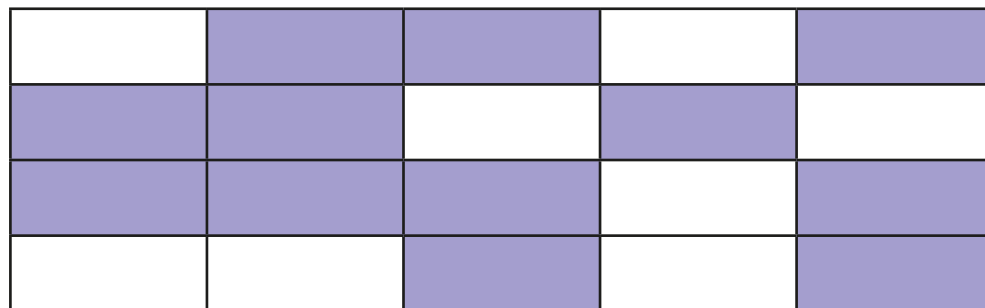
d) 95% of 120 =

5% of 120 = 6

e) 99% of 800 =

1% of 800 = 8

- 6 A rectangle is divided into identical smaller rectangles.



- a) How many more rectangles need to be shaded so that 75% of the shape is shaded?
- b) How many shaded rectangles need to be unshaded so that 50% of the shape is shaded?
- c) How many more rectangles need to be shaded so that 5% of the shape is not shaded?

- 7 Ms Hall has £700 in her bank account. She spends 45% of her money on rent. How much money does she have left?

Ms Hall has  left.

- 8 Find the missing values.

% of 60 = 15

% of 30 = 15

% of 120 = 15

- 9 a) Work out 95% of 800

- b) What method did you use?  
Could you have used a different method?

- 10 Find the missing numbers in these calculations.

a) 30% of  =  $\frac{1}{3}$  of 90

b) 35% of 200 = 70% of

c) 40% of 120 = 20% of

d)  $\frac{1}{5}$  of  = 80% of 36

- 11 Find the values of the shapes.

30% of  = 

10% of  = 

50% of  = 0.75

 =

 =

 =

# Find a percentage of a given amount using a calculator



1 Complete the calculations.

Show your working.

a) 36% of £240 =

b) 79% of £56 =

2 Tick the calculation that cannot be used to find 83% of £542

☐  $542 \div 100 \times 83$

☐  $83 \times 542 \div 100$

☐  $542 \div 83 \times 100$

☐  $0.83 \times 542$

Explain your answer.

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3 Write  $<$ ,  $>$  or  $=$  to make the statement correct.

84% of 50  50% of 84

Explain your answer.

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4 In 2011, the population of Leeds was 474,632  
The population of Leeds has now increased.  
A web page states, "The population of Leeds has increased by 17%."  
Is it possible for the population to have increased by **exactly** 17%?  
Explain your answer.

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5 Calculate 37% of 2 m.  
Give your answer in centimetres.

cm

6 Dani is buying a bike.  
She finds the same bike in two different shops.



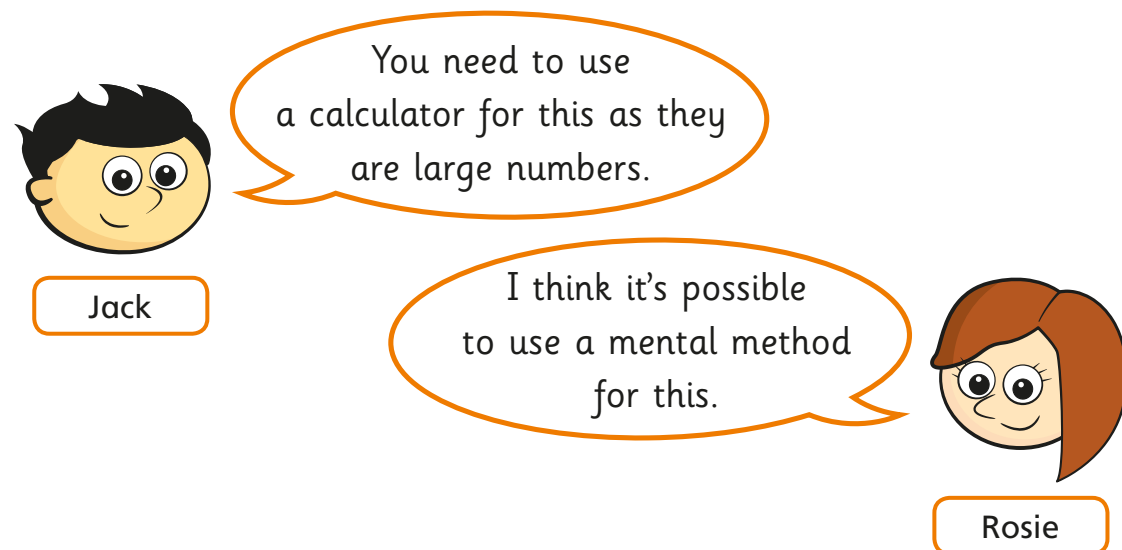
**Bike World**  
**£106**  
Price does not include VAT

**Fast Bikes**  
**£125.99**  
Price includes VAT



The rate of VAT is 20%.  
In which shop would it be cheaper to buy the bike? Show your working.

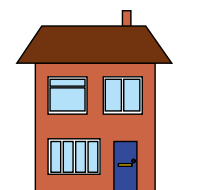
- 7 Rosie and Jack are calculating 99% of £250



Which mental method might Rosie use?



- 8 In 2007, the value of a house was £119,995  
From 2007 to 2018, house prices decreased by 9.4%.  
How much has the value of the house decreased by?




- 9 A car salesman earns commission for each car he sells.  
The commission is a percentage of his monthly salary, based on the values of the cars he sells.

Here is a table of his commissions.

Car value	Commission
< £15,000	2.3% of salary
≥ £15,000	5.7% of salary

His monthly base salary is £1,208

- a) How much commission does he earn from selling 1 car for less than £15,000?

- b) How much commission does he earn for selling 6 cars, each for less than £15,000?

- c) How much commission does he earn for selling 7 cars, each for more than £15,000?

- d) In January, he sells 6 cars that cost less than £15,000 and 7 cars that cost more than £15,000

How much does he get paid that month?

He gets paid

- 10 Mr Jones wants to put £850 into a bank account.  
He looks at the interest rates from two different banks.

**Bank Central**

**First year:**  
3% of the original amount deposited

**Second year:**  
1.5% of the total amount at the end of year 1

**Bank Happy**

**First year:**  
0.5% of the original amount deposited

**Second year:**  
4% of the total amount at the end of year 1

At the end of 2 years he wants to have made as much money as possible.

Which bank should Mr Jones use? \_\_\_\_\_

Explain your answer.

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