



MOUNT HOUSE SCHOOL

INSPIRING EVERY INDIVIDUAL

Mathematics Entrance Test for Year 7 entry

SAMPLE PAPER

Instructions

Answers



This means write down your answer or show your working and write down your answer.

Calculators



You **must not** use a calculator to answer any question in this test.

Remember:

- The test is 45 minutes long.
- You will need: pen, pencil, rubber and a ruler.
- This test starts with easier questions.
- Try to answer all the questions.
- Write all your answers and working on the test paper – do not use any rough paper. Marks may be awarded for working.
- Check your work carefully.

1. This question is about money called euros.

Write the total number of euros in each box.

The first one is done for you.

<div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px; display: flex; justify-content: center; align-items: center;"> 500 <small>500 EURO</small> </div> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px; display: flex; justify-content: center; align-items: center;"> 100 <small>100 EURO</small> </div>	<div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px; display: flex; justify-content: center; align-items: center;"> 10 <small>10 EURO</small> </div> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px; display: flex; justify-content: center; align-items: center;"> 5 <small>5 EURO</small> </div>
Total: <u>615</u> euros	

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Total: _____ euros	
_____ 1 mark	

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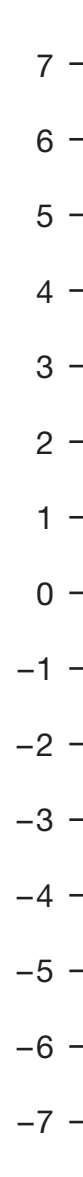
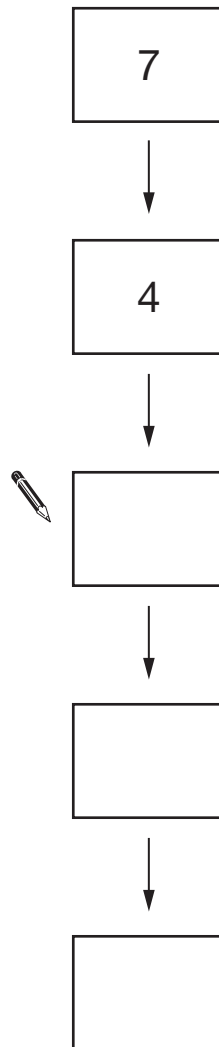
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Total: _____ euros	
_____ 1 mark	
_____ 1 mark	



2. A sequence of numbers **decreases by 3** each time.

Write the missing numbers in the sequence below.

You can use the number line on the right to help you.



2 marks

3. Here is part of the 36 times table.

1	×	36	=	36
2	×	36	=	72
3	×	36	=	108
4	×	36	=	144
5	×	36	=	180
6	×	36	=	216
7	×	36	=	252
8	×	36	=	288
9	×	36	=	324
10	×	36	=	360

Use the 36 times table to help you work out the missing numbers.



$$288 \div 8 = \underline{\hspace{2cm}}$$

1 mark

$$180 \div 36 = \underline{\hspace{2cm}}$$

1 mark

$$11 \times 36 = \underline{\hspace{2cm}}$$

1 mark



4. The table shows feeding times for some animals in a zoo.

	Start of feeding times	Length of feeding times
Elephants	11:15 am 2:15 pm 3:20 pm	15 minutes
Giraffes	12:20 pm 2:30 pm	15 minutes
Otters	1:00 pm	10 minutes
Seals	1:00 pm 4:00 pm	10 minutes
Tigers	2:30 pm	30 minutes

- (a) The first feeding time for **giraffes** starts at 12:20 pm.

At what time does it **finish**?



_____ : _____

1 mark

- (b) One feeding time **finishes** at 3:00 pm.

Which animal's feeding time is this?



1 mark

- (c) A visitor arrives at the zoo at **1:45 pm**.

How many minutes later does the next feeding time for **elephants** start?



_____ minutes

1 mark

(d) A different visitor arrives at the zoo at **12:30 pm**.

She wants to watch feeding times for **elephants, otters and seals** that day.

Write three feeding times that she could watch.



Elephants at _____ : _____

Otters at _____ : _____

Seals at _____ : _____

_____ 1 mark

5. Work out



$$64 + 57 = \underline{\hspace{2cm}}$$

_____ 1 mark

$$64 - 57 = \underline{\hspace{2cm}}$$

_____ 1 mark



6. In America, there are coins each worth 25 cents.

These coins are called **quarters** because four of them make one dollar.



(a) Altogether, how many quarters make **3 dollars**?



1 mark

(b) Laura has **20 quarters**.

How many dollars is that?



1 mark

(c) Dev wants to change **10 dollars** into quarters.

How many quarters should he get?



1 mark

7. (a) Tick (✓) all the numbers below that **divide by 5** with no remainder.

 12 15 16 20 30

1 mark

(b) Tick (✓) all the numbers below that **divide by 3** with no remainder.

 12 15 16 20 30

1 mark

(c) Tick (✓) all the numbers below that **divide by 15** with no remainder.

 12 15 16 20 30

1 mark

8. The table shows the approximate populations of five different places.

Place	Approximate population
London	7 000 000
Sheffield	700 000
Harrogate	70 000
Ash Vale	7 000
Binbrook	700

- (a) Which of the places has a population of about **seventy thousand**?



1 mark

- (b) Use the table to complete these sentences.



The population of **Harrogate** is about **10 times** as big as

the population of _____

The population of _____ is about **100 times** as big as

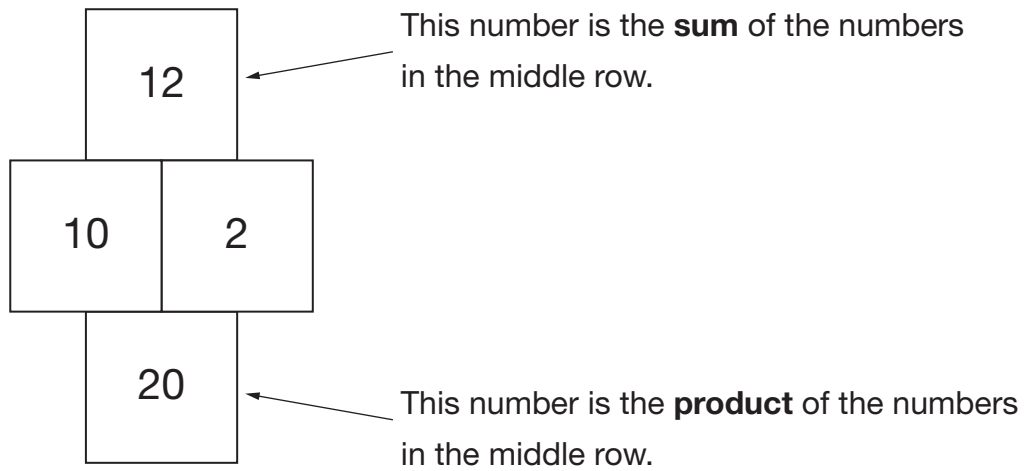
the population of **Harrogate**.

The population of **Sheffield** is about _____ **times** as big as

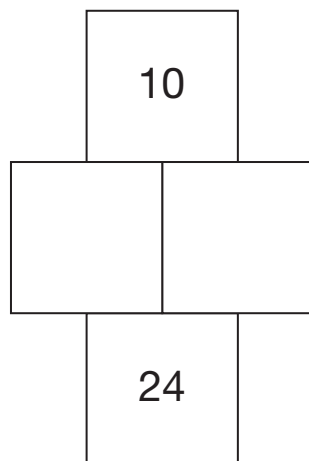
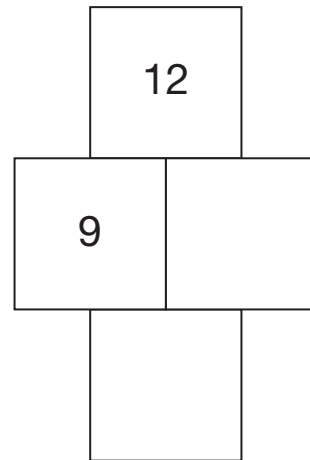
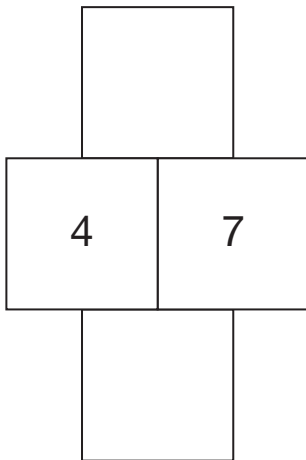
the population of **Ash Vale**.

2 marks

9. Here are the rules for a number grid.



Use the rules to write the missing numbers in these number grids.

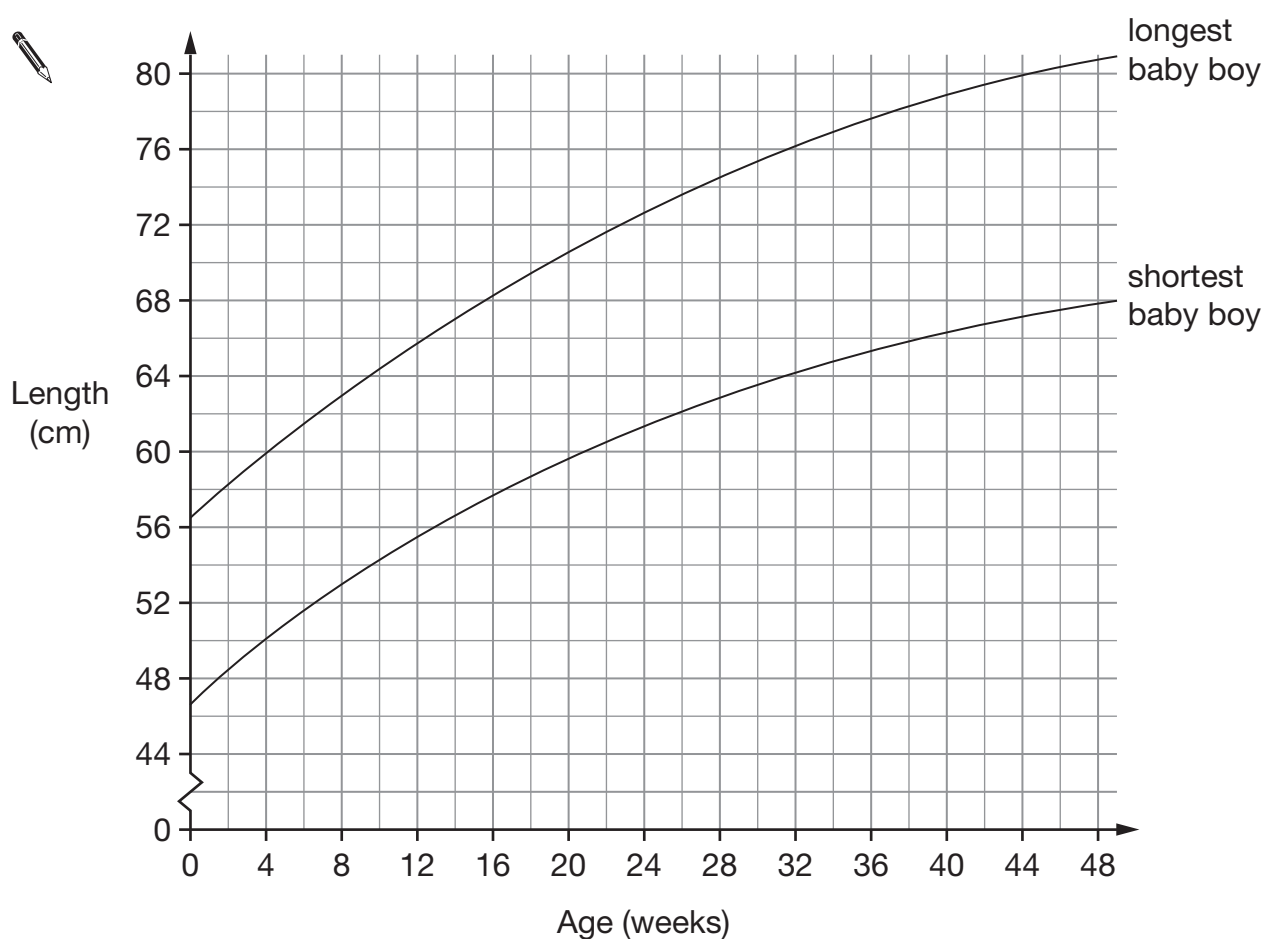


 3 marks



10. The lengths of babies are measured at different ages.

The graph shows the longest and shortest a baby boy is likely to be.



- (a) Write the missing numbers below.

A baby boy is **8 weeks old**.



The **longest** he is likely to be is about _____ cm.

_____ 1 mark

The **shortest** he is likely to be is about _____ cm.

_____ 1 mark

- (b) A **34 week** old baby boy is **72cm** long.

Put a cross on the graph to show this information.

_____ 1 mark

11. Here are six number cards.



- (a) Choose two of these six cards to make a fraction that is equivalent to $\frac{1}{3}$



1 mark

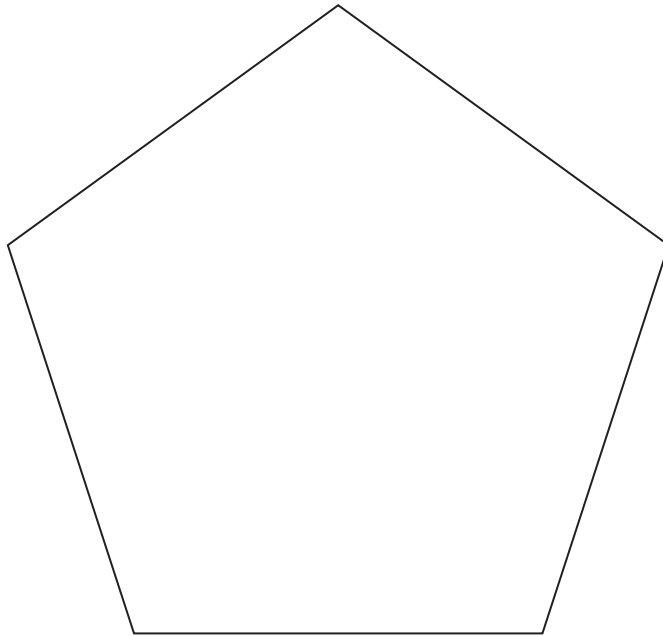
- (b) Choose two of these six cards to make a fraction that is **greater than** $\frac{1}{2}$ but **less than 1**



1 mark



12. The shape below is a regular pentagon.
All five sides are exactly the same length.



Measure accurately one of the sides, then work out the **perimeter** of the pentagon.



1 mark

1 mark

Perimeter = cm

1 mark

13. (a) A **three-digit** number is a **multiple of 4**

What could the number be?

Give an example.



Now give a **different** example.



1 mark

(b) A **two-digit** number is a **factor of 100**

What could the number be?

Give an example.



1 mark


Now give a **different** example.



1 mark



14. (a) Write the answer to this calculation.

 + + =

1 mark

- (b) Now write a number in each box to make this calculation correct.

The three numbers must be the **same**.

 + + =

1 mark

15. Sam says:

The **only** four-sided shape with four right angles is a square.

Is Sam correct?

 Yes No

Explain your answer.



1 mark

16. (a) When $x = 8$, what is the value of $5x$?

Tick (✓) the correct box below.

 5 13 40 58 None of these

_____ 1 mark

(b) When $x = 8$, what is the value of $3x - x$?

Tick (✓) the correct box below.

 0 3 16 30 None of these

_____ 1 mark

(c) When $x = 8$, what is the value of x^2 ?

Tick (✓) the correct box below.

 8 10 16 64 None of these

_____ 1 mark



17. Lisa uses a grid to multiply **23** by **15**


×	20	3
10	200	30
5	100	15

$$200 + 100 + 30 + 15 = 345$$

Answer: **345**

Now Lisa multiplies two different numbers.

Complete the grid, then give the answer below.



×	_____	40	3
30	_____	_____	_____
_____	600	_____	18



Answer: _____

3 marks

18. Fred has a bag of sweets.

Contents
3 yellow sweets
5 green sweets
7 red sweets
4 purple sweets
1 black sweet

He is going to take a sweet from the bag at random.

- (a) What is the **probability** that Fred will get a **black** sweet?



1 mark

- (b) Write the missing **colour** in the sentence below.




The probability that Fred will get a _____ sweet is $\frac{1}{4}$

1 mark



19. Write a number in each box to make the calculations correct.

 + =

1 mark


- =

1 mark

20. A rectangle has an **area** of **24 cm²**

How long could the sides of the rectangle be?

Give three **different** examples.

 _____ cm and _____ cm

_____ cm and _____ cm

_____ cm and _____ cm

2 marks

21. (a) Write the missing numbers.



$50\% \text{ of } 80 = \underline{\hspace{2cm}}$

$5\% \text{ of } 80 = \underline{\hspace{2cm}}$

$1\% \text{ of } 80 = \underline{\hspace{2cm}}$

2 marks

(b) Work out 56% of 80

You can use part (a) to help you.



$\underline{\hspace{2cm}}$

1 mark



22. Look at this equation.

$$y = 2x + 10$$

(a) When $x = 4$, what is the value of y ?



1 mark

(b) When $x = -4$, what is the value of y ?



1 mark

(c) Which equation below gives the **same** value of y for both $x = 4$ and $x = -4$?

Put a ring round the correct equation.



$y = 2x$

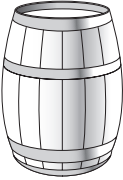
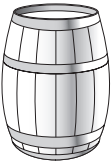


$y = 2 + x$

$y = x^2$

$y = \frac{x}{2}$

1 mark

23. The diagram shows four different sized barrels.

			
Barrel A holds 54 gallons	Barrel B holds 36 gallons	Barrel C holds 18 gallons	Barrel D holds 9 gallons

Write the missing fractions **as simply as possible**.

The first one is done for you.

Barrel **C** holds $\frac{1}{2}$ of the amount barrel **B** holds.



Barrel **D** holds _____ of the amount barrel **B** holds.

Barrel **C** holds _____ of the amount barrel **A** holds.

Barrel **B** holds _____ of the amount barrel **A** holds.

2 marks



END OF TEST