

TRURO SCHOOL
13+ MATHEMATICS



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SCHOOL

SAMPLE



**No Calculators are to be used for this exam.
Show all your working clearly; ask for extra
paper if necessary, but hand it in.**

Time allowed *1 hour.*

1. (a) A rugby club is planning a trip.

The club hires **17** coaches. Each coach holds **42** passengers.

How many passengers is that altogether?

Show your working.

..... passengers

2 marks

(b) The club wants to put one first aid kit into each of the **17** coaches.

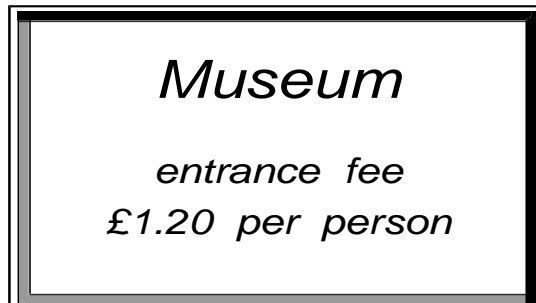
These first aid kits are sold in **boxes of 5**

How many boxes does the club need?

..... boxes

1 mark

2.



(a) **137 people** paid the entrance fee on Monday.

How much money is that altogether?

Show your working.

£.....

2 marks

(b) The museum took **£660** in entrance fees on Friday.

How many people paid to visit the museum on Friday?

Show your working.

..... people

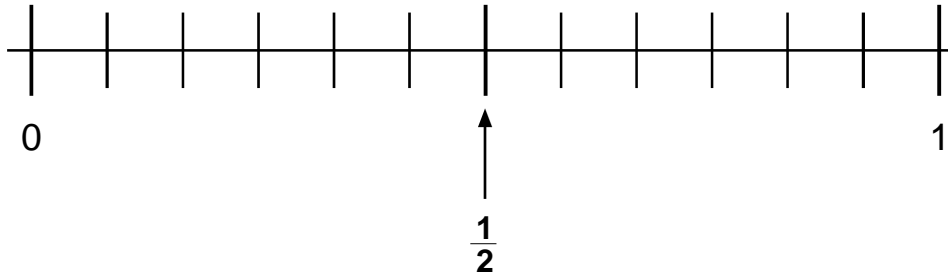
2 marks

3. (a) Look at these fractions.

$$\frac{1}{2} \quad \frac{3}{4} \quad \frac{5}{12}$$

Mark each fraction on the number line.

The first one is done for you.



2 mark

(b) Fill in the missing numbers in the boxes.

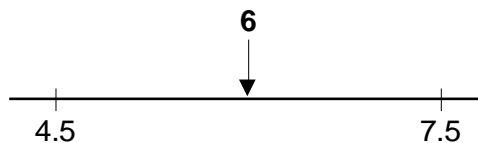
$$\frac{3}{12} = \frac{\square}{4}$$

$$\frac{1}{5} = \frac{12}{\square}$$

$$\frac{2}{\square} = \frac{8}{24}$$

3 marks

4. The number 6 is halfway between 4.5 and 7.5



Fill in the missing numbers below.

The number 6 is halfway between **3.5** and

1 mark

The number 6 is halfway between **-2** and

1 mark

(b) Work out the number that is halfway between **39 × 13** and **41 × 13**
Show your working.

.....

1 marks

5. The table shows some percentages of amounts of money

	£10	£30	£45
5%	50p	£1.50	£2.25
10%	£1	£3	£4.50

You can use the table to help you work out the missing numbers.

15% of £30 =

1 mark

£6.75 = 15% of

1 mark

£3.50 = % of £10

1 mark

25p = 5% of

1 mark

6. On a farm **80** sheep gave birth.

30% of the sheep gave birth to two lambs.
The rest of the sheep gave birth to just one lamb.

In total, how many lambs were born?
Show your working.

..... lambs

3 marks

7. Here is a list of numbers:

-8 -6 -4 -2 0 1 3 5

You can choose some of the numbers from the list and add them to find their **total**.

For example,

$$\dots \mathbf{5} \dots + \dots \mathbf{-2} \dots = \mathbf{3}$$

(a) Choose **two** of the numbers from the list which have a **total** of **1**

$$\dots + \dots = \mathbf{1}$$

1 mark

(b) Choose **two** of the numbers from the list which have a **total** of **-3**

$$\dots + \dots = \mathbf{-3}$$

1 mark

Choose **two other** numbers from the list which have a **total** of **-3**

$$\dots + \dots = \mathbf{-3}$$

1 mark

(c) What is the **total** of **all eight** of the numbers on the list?

1 mark

(d) Choose the **three** numbers from the list which have the **lowest possible total**.

Write the three numbers and their total.

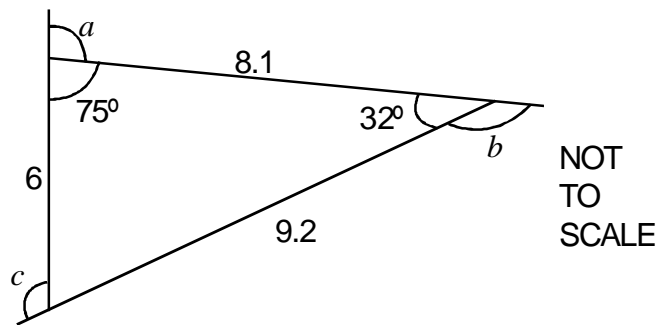
You must not use the same number more than once.

$$\dots + \dots + \dots =$$

2 marks

8. Kay is drawing shapes on her computer.

(a) She wants to draw this triangle. She needs to know angles a , b and c .



Calculate angles a , b and c .

$a = \dots\dots\dots^\circ$

1 mark

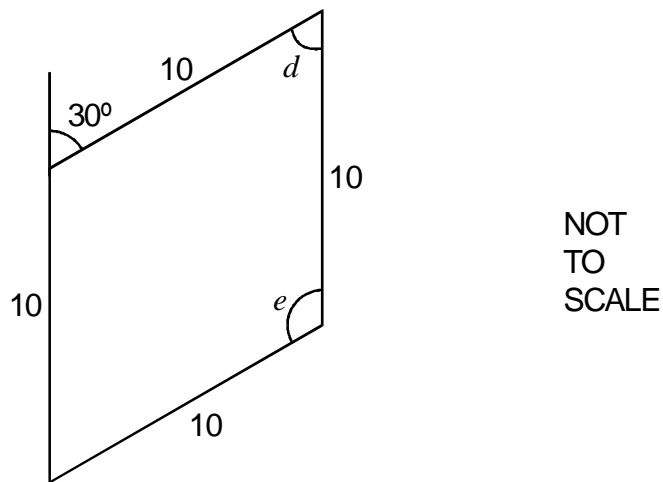
$b = \dots\dots\dots^\circ$

1 mark

$c = \dots\dots\dots^\circ$

1 mark

(b) Kay draws a rhombus:



Calculate angles d and e .

$d = \dots\dots\dots^\circ$

1 mark

$e = \dots\dots\dots^\circ$

1 mark

9. Write each expression in its simplest form.

$$4 + 3t + 5t$$

.....

1 mark

$$3b + 6 + 2b + 7$$

.....

1 mark

$$(3d - 5) + 3(d + 2)$$

.....

2 mark

$$(m + 1)(m + 3)$$

.....

2 mark

10. (a) When $x = 3$, work out the values of the expressions below.

$$3x + 2 = \dots\dots\dots$$

$$5x - 14 = \dots\dots\dots$$

$$7 - 4x = \dots\dots\dots$$

3 marks

(b) When $3y + 1 = 19$, work out the value of y
Show your working.

$$y = \dots\dots\dots$$

2 marks

(c) Solve the equation $7y + 5 = 3y + 13$
Show your working.

$$y = \dots\dots\dots$$

3 marks

11. (a) Circle the **best** estimate of the answer to

$$72.34 \div 8.91$$

- 6 7 8 9 10 11

1 mark

(b) Circle the **best** estimate of the answer to

$$32.7 \times 0.48$$

- 1.2 1.6 12 16 120 160

1 mark

(c) Estimate the answer to $\frac{8.62 + 22.1}{5.23}$

Give your answer to **1 significant figure**.

.....

1 mark

(d) **Estimate** the answer to $\frac{28.6 \times 24.4}{5.67 \times 4.02}$

.....

1 mark

12. (a) Two numbers **multiply** together to make **12**
They **add** together to make **7**

What are the two numbers? and

1 mark

(b) Two numbers **multiply** together to make **12**
but **add** together to make **13**

What are the two numbers? and

1 mark

(c) Two numbers **multiply** together to make **-8**
but **add** together to make **2**

What are the two numbers? and

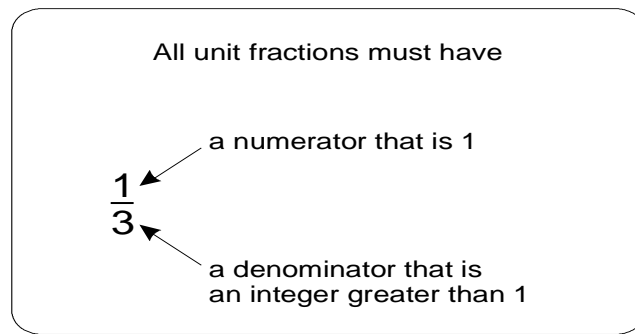
1 mark

(d) The square of **9** is **81**
The square of **another** number is also **81**

What is that other number?

1 mark

13. $\frac{1}{3}$, $\frac{1}{8}$, $\frac{1}{5}$ are all examples of unit fractions.



The ancient Egyptians used only unit fractions.

For $\frac{3}{4}$, they wrote the sum $\frac{1}{2} + \frac{1}{4}$

- (a) For what fraction did they write the sum $\frac{1}{2} + \frac{1}{5}$?

Show your working.

.....

1 mark

- (b) They wrote $\frac{9}{20}$ as the sum of two unit fractions.

One of them was $\frac{1}{4}$

What was the other?

Show your working.

.....

2 mark

- (c) What is the biggest fraction you can make by adding two **different** unit fractions?

Show your working.

.....

2 marks

End of Test