



Sample admission test

Question 1.

a) Write 0.578 as a percentage

.....

b) Write 0.375 as a fraction in the simplest form

.....

c) Round 29.479 to two decimal places

.....

d) Work out $\sqrt[3]{0.729}$

.....

e) Write these decimals in order of size. Start with the smallest decimal

8.012

8.01119

8.0101

8.0099

8.01

.....

Question 2.

Work out:

a) $\frac{7}{16} + 2\frac{3}{8} =$

b) $5\frac{2}{3} \div 2\frac{1}{6} =$

c) $\frac{2}{5}$ of 105 =



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Question 3.

Simplify the following:

a) $3x - 5y + 7x - 12y =$

b) $5(2x - 4) - 7(10 - 2x) =$

c) $(2 + 3y)(1 - 5y) =$

Question 4.

Work out the value of $t = u^3 - 2ab^2$, where $u = -2, a = -3, b = -4$.

Question 5.

Make the letters in the square brackets the subject of each formula:

a) $\frac{a-u}{b+u} = \frac{c}{d}$ [u]

b) $\sqrt{A^2 - B} = C$ [A]

Question 6.

a) Work out $5^{-2} + 3^2 - 10^0 \times (-4)^3 =$

b) Simplify $\frac{x^5y^7}{(x^2y)^3}$

c) Write 1.74×10^6 as an ordinary number

d) Work out, giving your answer in standard form

$$1.3 \times 10^{10} - 0.9 \times 10^9$$

Question 7.

Solve the simultaneous equations

$$\begin{cases} 3x + 4y = 12 \\ 2x - y = 5 \end{cases}$$

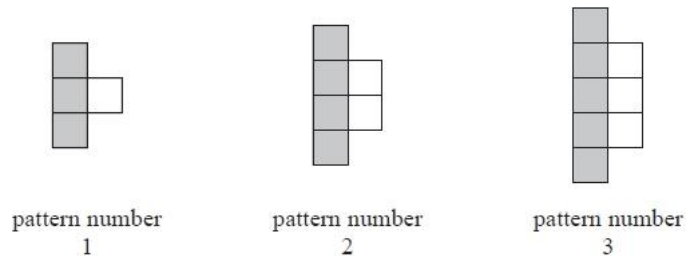
Show clear algebraic working.



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Question 8.

Here is a sequence of patterns made with grey square tiles and white square tiles.



- (a) In the space below, draw pattern number 5
- (b) Find the total number of tiles in pattern number 30
- (c) Write an expression, in terms of n , for the number of grey tiles in pattern number n .

Question 9.

Solve the following equation

$$\frac{5-x}{2} - \frac{3x}{4} = 1$$

Question 10.

Anna is x years old.

Liam is $(2x + 3)$ years old.

Ben is $3x$ years old.

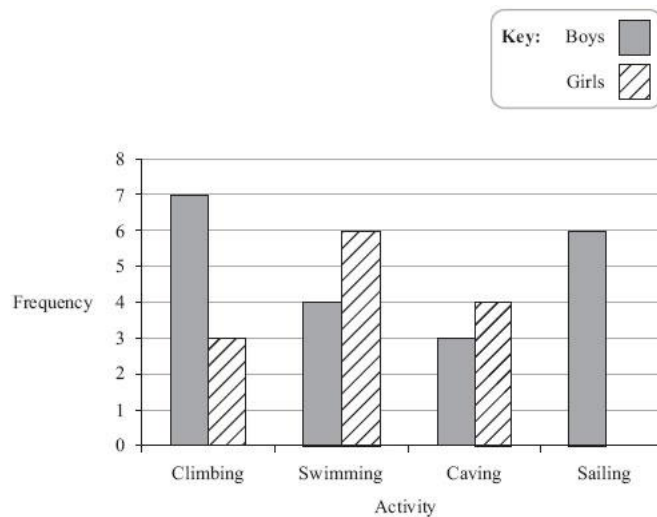
Write an expression, in terms of x , for the mean of their ages. Give your answer in the simplest form.



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Question 11.

The bar chart shows some information about students' favourite activity.



(a) How many boys were surveyed?

(b) How many more girls than boys like swimming?

5 girls like sailing.

(c) Complete the bar chart.

Question 12.

The diagram shows a trapezium PQRS. Calculate the perimeter of the trapezium PQRS.

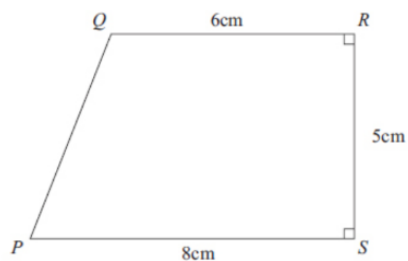


Diagram NOT
accurately drawn



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Question 13.

In 2019, Jan's weekly pay was \$540

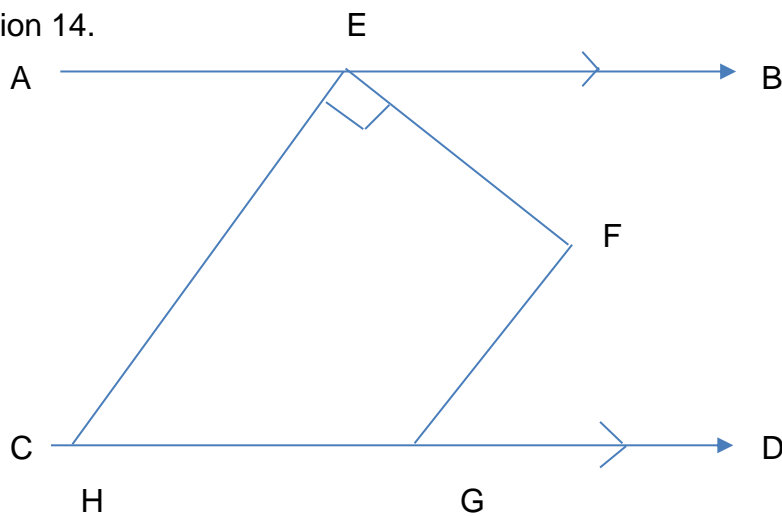
In 2020, Jan's weekly pay was \$580.80

(a) Work out the percentage increase in Jan's pay between 2019 and 2020

In 2020, Jan's weekly pay was 120% of his weekly pay in 2016

(b) Work out Jan's weekly pay in 2016

Question 14.



AB is parallel to CD.

EFGH is a quadrilateral.

The size of the angle BEF is 37° .

The angle FGH is of size 124° .

Find the size of the angle EHG.

You must show your working.

Question 15.

A carton measures 5 cm by 3 cm by 4 cm.

Cartons are packed into boxes. A box measures 50 cm by 19 cm by 29 cm. Work out the number of cartons that can completely fill one box.



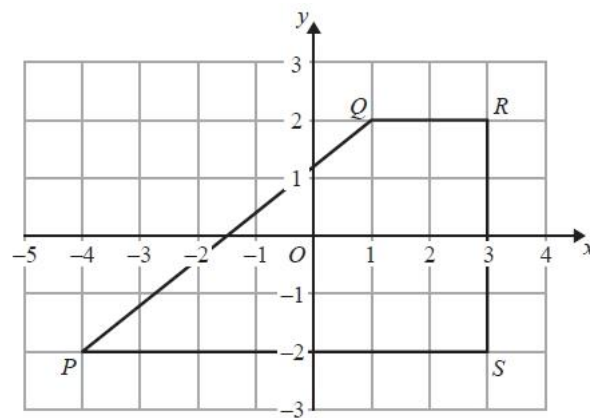
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Question 16.

Anna throws a 5-sided dice with the faces labelled with letters A, B, C, D and E.
She also spins a coin.
The coin can land on heads (H) or on tails (T).
List all the possible combinations she could get.

Question 17.

The diagram shows a quadrilateral $PQRS$ on a centimetre grid.



- Write down the coordinates of Q .
- What is the mathematical name of the quadrilateral $PQRS$?
- Calculate the length of the line segment PR .
- Work out the area of a quadrilateral $PQRS$.
- Hence, calculate the area of a triangle PQR .



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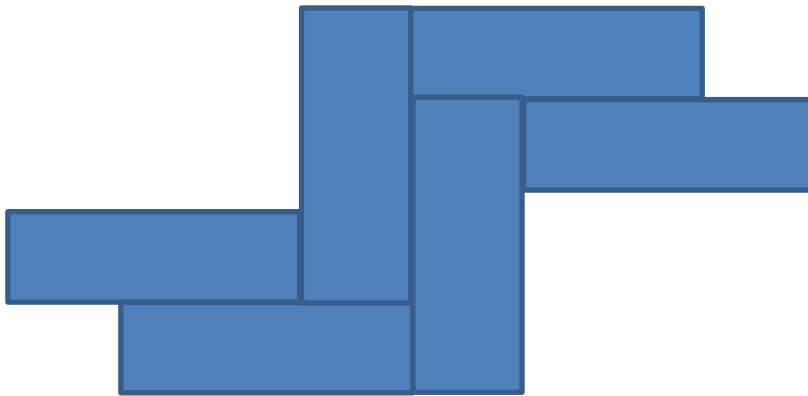
Question 18.

Here is a rectangle.



The length of the rectangle is 4 cm longer than the width of the rectangle.

6 of these rectangles are used to make the shape given below.



The perimeter of the shape is 60 cm.

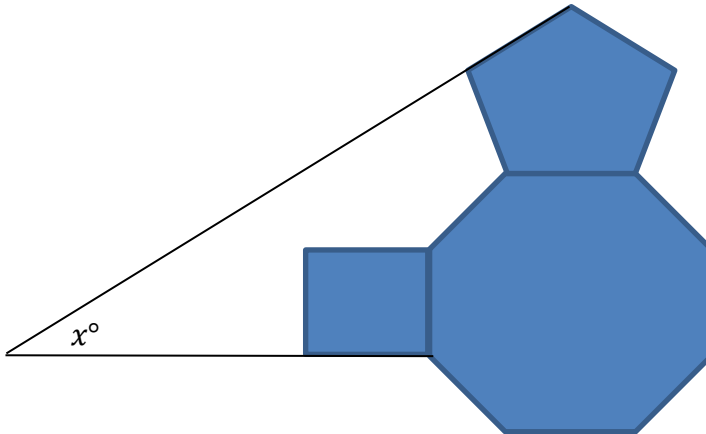
Work out the area of this shape.



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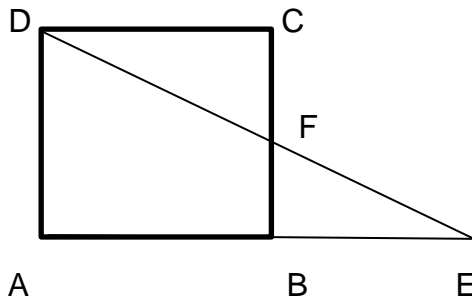
Question 19.

The diagram shows a regular octagon. On its sides, a square and a regular pentagon were attached. One side of the square is extended to meet an extended side of the pentagon. What is the value of x ?



Question 20.

The diagram shows a square ABCD and a right-angled triangle ABE. The length of AB is 10. The length of BE is 12. What is the area of the shape FBE ?



Question 21.

On Monday, all prices in Tom's shop are 20% more than normal. On Friday, all prices in Tom's shop are 15% less than normal. Anna bought a book on Monday for \$3.50. What would be the price of another copy of this book on Friday?

Question 22.

Ten years ago, the age of a person's mother was three times the age of her son. In two years from now, the mother's age will be five times the age of her son ten years ago from now. What would be the ratio of their present ages?



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Question 23.

A bag contains only red, blue and green counters. There are four times as many blue counters as green counters. There are 41 counters altogether in a bag.

Some red counters are added to the bag. There are now 52 counters in the bag.

The number of red counters has doubled.

How many green counters are there in the bag?

You must show your working.