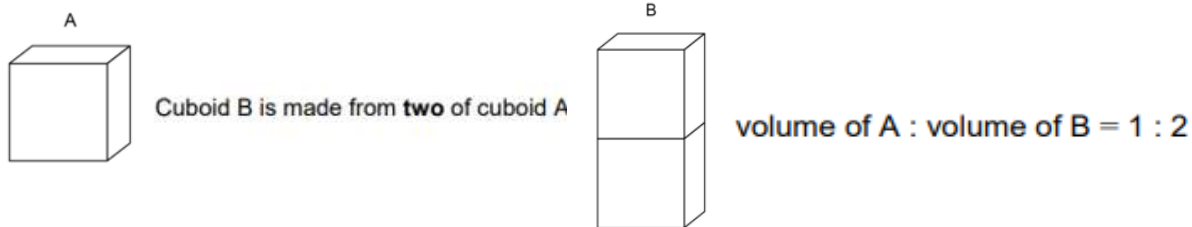


AQA GCSE Mathematics Calculator 2023 Higher Paper 3 Revision Worksheet

Question 6

Here is cuboid A. Cuboid B is made from two of cuboid A.



Matthew says, "surface area of A : surface area of B must be 1 : 2 because B is made of 2 of A."

Is Matthew correct? Tick which one?.

- Yes No Cannot tell

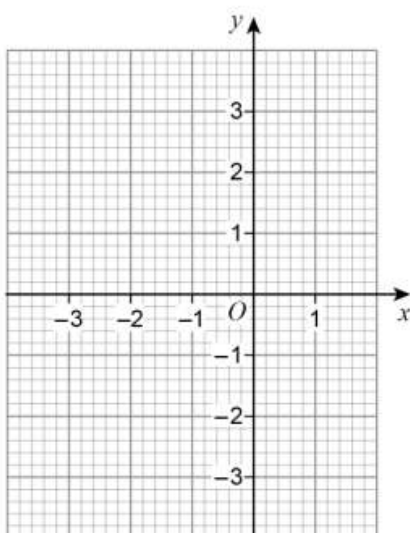
Give a reason for your answer.

Question 7

(a) Complete the table of values for $y = x^2 + 2x$

x	-3	-2	-1	0	1
y	3		-1	0	

(b) Draw the graph of $y = x^2 + 2x$ for values of x from -3 to 1



Question 8

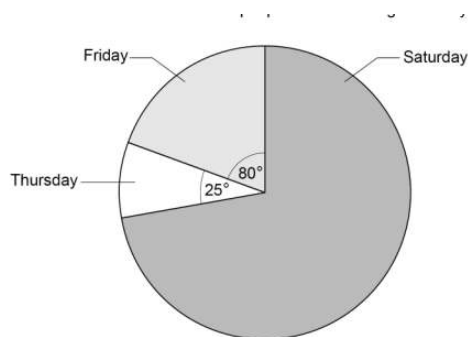
Jing has £2450. She saves some and gives the rest to her four brothers.

Money saved : money given to brothers = 2 : 5 She gives each of her four brothers the same amount.

Does each brother receive more than £430? You must show your working.

Question 9

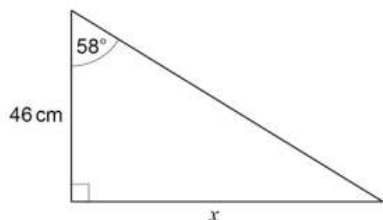
The pie chart shows information about people at a fair during three days. There were 132 more people on Friday than on Thursday.



Work out the number of people on Saturday.

Question 10

Use trigonometry to work out the value of x .



Question 11

Millie is estimating the value of $\frac{1}{(\sqrt[3]{8.34})^2 \times 10.21}$ She rounds each decimal number to 1 significant figure.

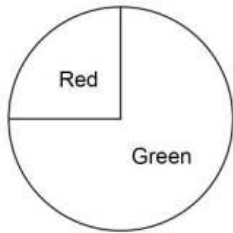
(a) Work out Millie's estimate.

You must show your working.

(b) Millie says, "My estimate must be more than the exact value." **Without working out the exact value,** give a reason how she can know this.

Question 12

A biased spinner with red and green sections.



(a) Ali, Ben, and Cary want to know the probability of spinning red on the biased spinner. They each spin it and count how many times it lands on red and divide by the total number of spins.

- Ali says: I spun red the most times
- Ben says: I spun the spinner the most times
- Cary says: My relative frequency of red is 0.25

Who had the best estimate for the probability of spinning red? Give a reason for your answer

(b) Dev spins the spinner 80 times. He says, “My relative frequency of red is 0.185.” Give a reason why his relative frequency must be wrong.

(c) Elena spins the spinner 125 times. The relative frequency of red is 0.32

Work out how many times the spinner landed on green.

Question 13

Charlie is driving 293 miles home. He leaves at 9.00 am, travels the first 176 miles at an average speed of 48 mph, and drives the rest of the way at an average speed of 65 mph.

Will he be home by 2.30 pm? **You must show your working.**

(Q 14) Kiran paid Income Tax and National Insurance on her annual salary.

Income Tax
0% of the first £12 570 of her annual salary
20% of the rest of her annual salary

National Insurance
0% of the first £9 880 of her annual salary
13.25% of the rest of her annual salary

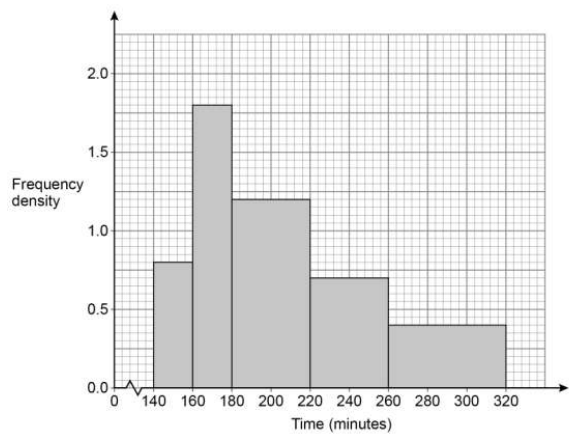
Kiran paid £5186 Income Tax.

How much National Insurance did she pay?

Question 15

180 runners started a marathon. Some of the runners did not complete it.

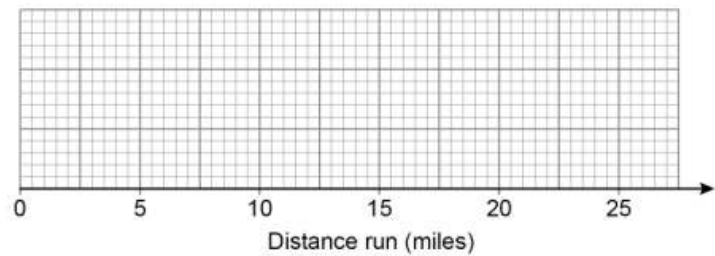
- (a) The histogram represents the times of the runners who did complete the marathon. How many runners did not complete the marathon?



- (b) The table shows information about the runners who did not complete the marathon:

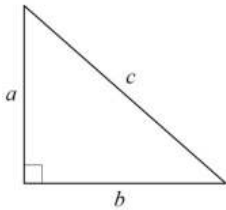
	Distance run (miles)
Least distance	5
Greatest distance	23
Lower quartile	11
Median	18
Interquartile range	9

Draw a box plot to represent the information.



Question 16

In this right-angled triangle, $a = 16$ cm, $a:c = 4:5$.



Work out the area of the triangle.

Question 17

Solve $\frac{x+8}{2} - \frac{9-x}{5} = 4$

Question 18

Let $f(x) = x^2 + 6x$ and $g(x) = 2x + 4$

(a) Show that $fg(x) = 4x^2 + 28x + 40$

(b) Solve $fg(x) = -5$