AQA Paper 1H Practice Booklet

20 practice questions based on the advance information

Copies of this booklet, as well as hints & solutions, are available at bossmaths.com/advanceinfo

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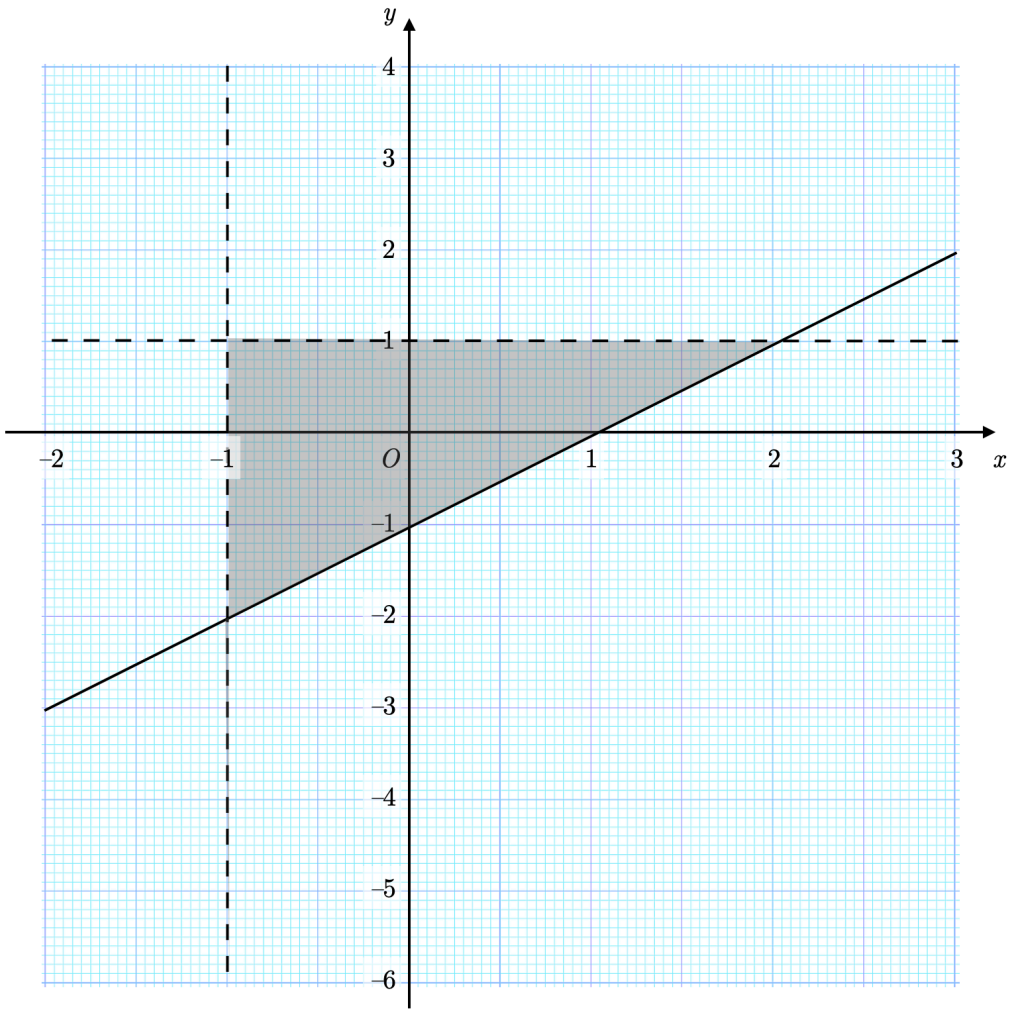
Question 1

Which is greater, $\frac{4}{3}$ of 87 g or 14% of 800 g?

Question 2

Work out $\left((0.35 \times 1.4)^2\right)^{\frac{1}{4}}$ writing your answer as a decimal.

Question 3



Write down the three inequalities that define the shaded region.

Question 4

Simplify each of these expressions as far as possible.

(a) $5\sqrt{44} - 8\sqrt{11}$

(b) $\sqrt{34} \times \sqrt{17}$

(c) $-7x - 3(9 - 2x)$

Question 5

Simplify fully $\dfrac{2x^2 + 9x - 5}{(3x + 4) - (x + 5)}$

Question 6

Work out $9.5 \times 10^8 + 60{,}200{,}000$, writing your answer in standard form.

Question 7

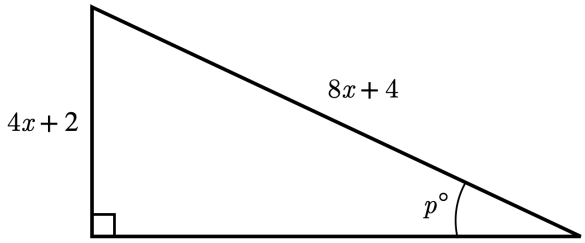
The first three terms of an arithmetic sequence are:

$\frac{x-5}{2}$, $x-5$, $2x-21$

Find the value of x.

Question 8

The diagram shows the lengths, in centimetres, of two sides of a right-angled triangle.
Find the value of p.



Question 9

How many faces does an octagonal prism have?

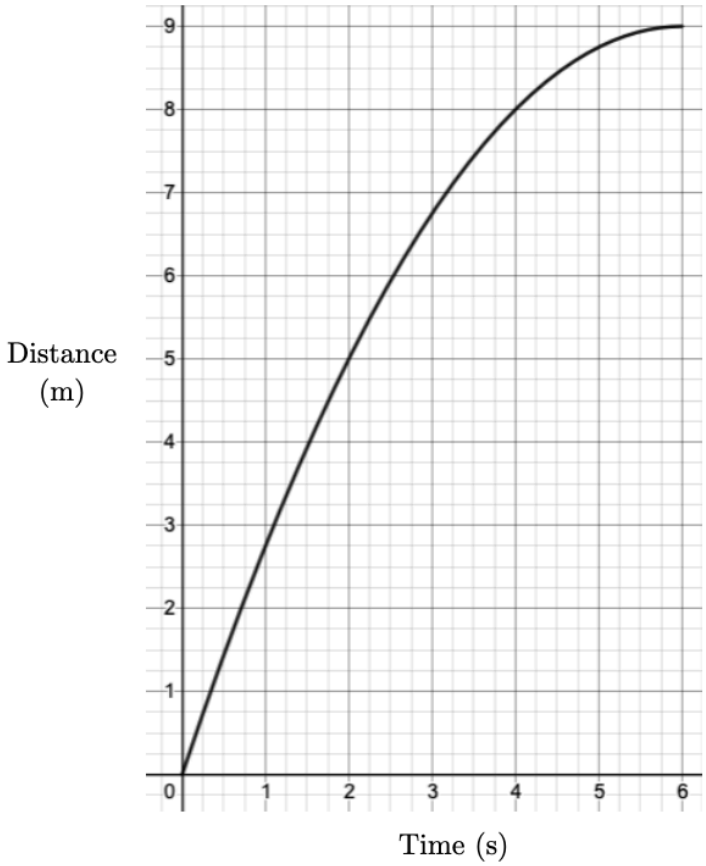
Question 10

(a) Write $0.10\dot{3}$ as fraction in its simplest form.

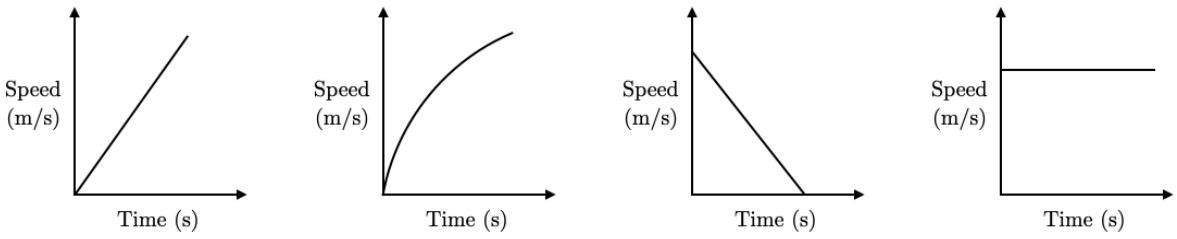
(b) A biased coin has a probability of $0.10\dot{3}$ of landing tails side up. If the coin is flipped 330 times, how many times would you expect the coin to land tails side up?

Question 11

The graph shows the distance covered by a cyclist for 6 seconds.

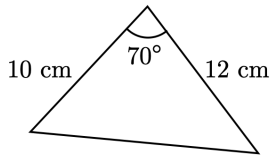


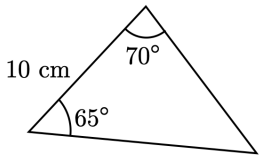
Here are four sketches of speed-time graphs. **One** of these sketches represents the cyclist's speed during the six-second period shown on the distance-time graph above. Circle this sketch.

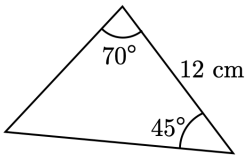


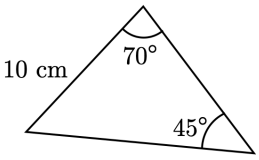
Question 12

Here are sketches of four triangles. The sketches are not drawn to scale. Exactly two of the four triangles are congruent to each other. Circle these two triangles.





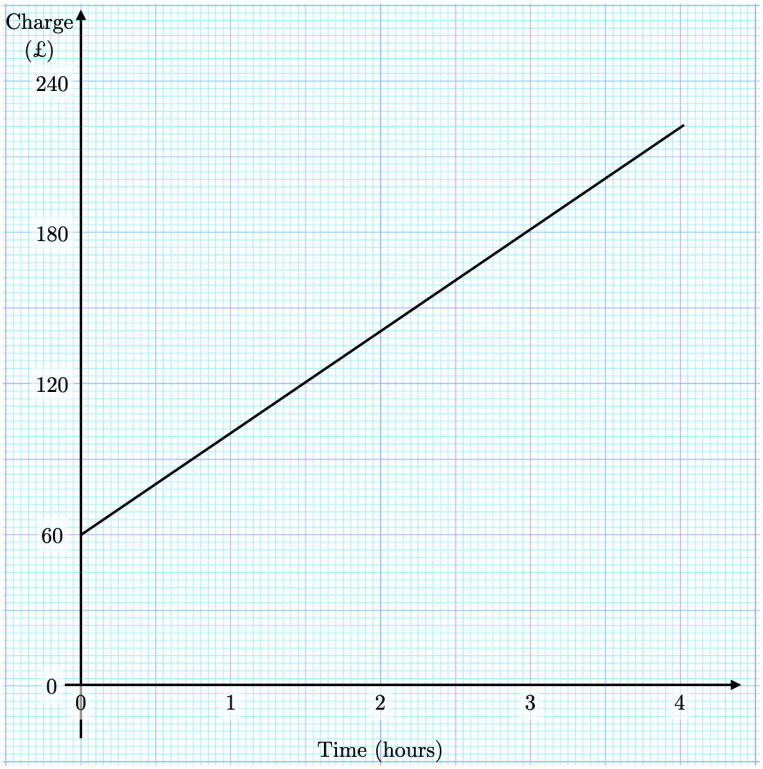




Question 13

This graph shows the amount charged by a plumber for up to 4 hours of work.

Give an interpretation of the gradient of this graph.



Question 14

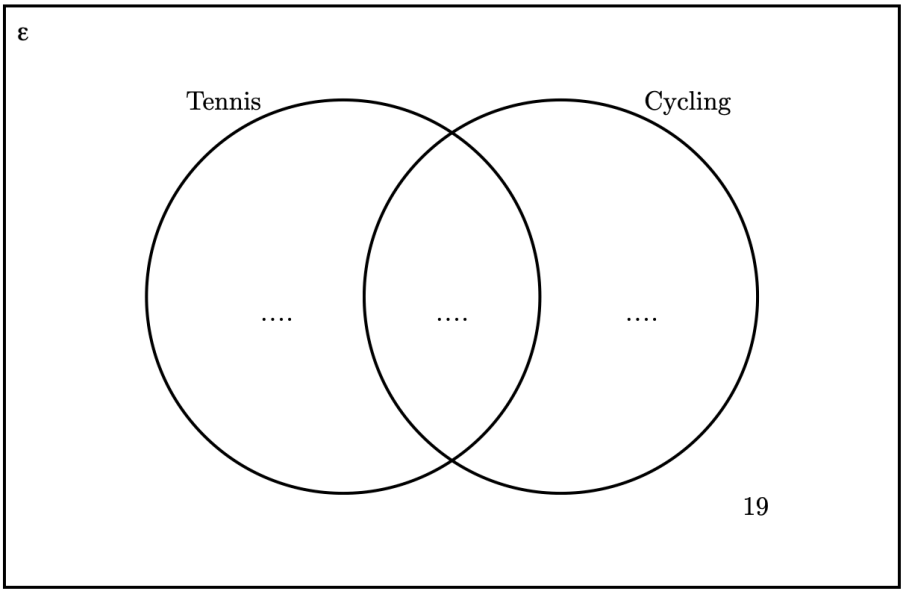
A group of 40 people are asked whether like tennis, cycling, both, or neither.

The probability that a randomly chosen individual likes tennis is $\frac{1}{5}$.

The probability that a randomly chosen individual likes cycling is $\frac{3}{8}$.

Of the 40 people, 19 said they didn't like either tennis or cycling.

Fill in the three blanks in this Venn diagram.



Question 15

Here are the equations of six curves.

A. $y = x^2 - 2x + 1$

B. $y = 5^x$

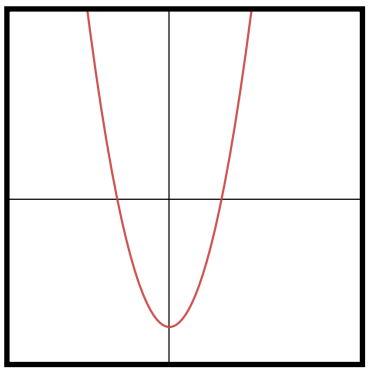
C. $y = \dfrac{1}{x}$

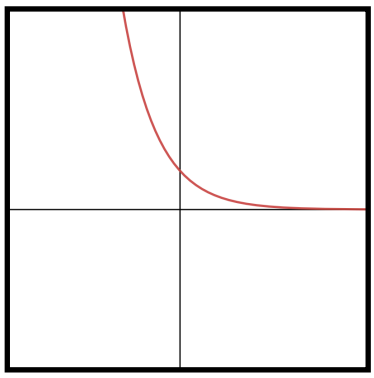
D. $y = x^2 - 8$

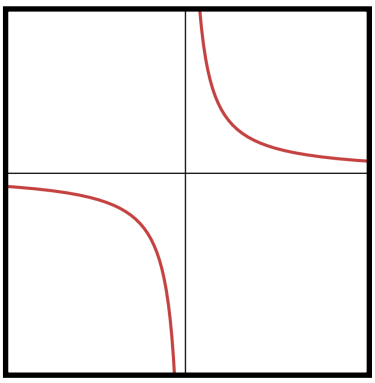
E. $y = 3^{-x}$

F. $y = \sin x$

Sketches of three of the above curves are shown below.







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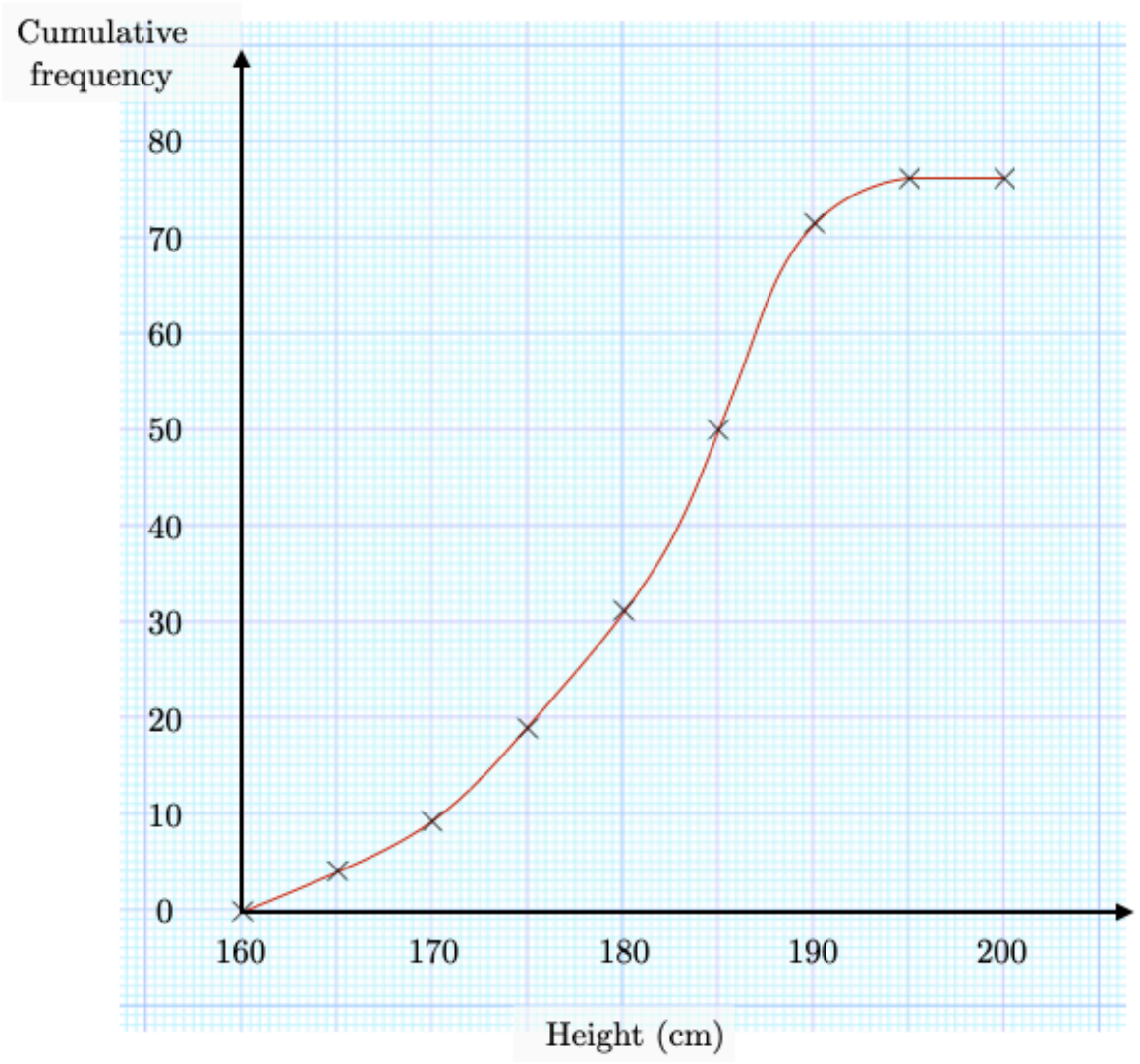
Match each graph to its equation from the list above.

Question 16

This cumulative frequency graph shows information about the heights, in cm, of rowers at a rowing club.



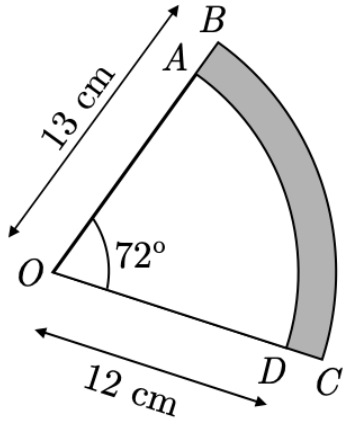
Work out an estimate for the number of these rowers with a height greater than 186 cm.

Question 17

OAD and OBC are sectors of circles with centre O.

The points O, A, and B lie on a straight line. Similarly, the points O, D, and C lie on a straight line.

OB has length 13 cm and OD has length 12 cm.



Find, in terms of π, the shaded area $ABCD$ in cm^2.

Question 18

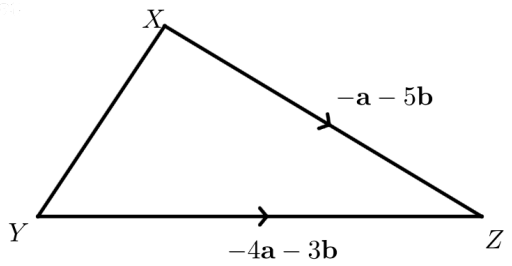
(a) Make p the subject of the formula $m = \dfrac{8(q + 3p)}{p}$

(b) Work out the value of p when $q = \dfrac{3}{4}$ and $m = \dfrac{53}{2}$.

Write your answer as a fraction in its simplest form.

Question 19

The diagram shows the points, X, Y, and Z.



The vector $\overrightarrow{XZ} = -\mathbf{a} - 5\mathbf{b}$
The vector $\overrightarrow{YZ} = -4\mathbf{a} - 3\mathbf{b}$

Q is the midpoint of XY.

Find the vector $\overrightarrow{ZQ}$ in terms of **a** and **b**.

Question 20

The region R contains the set of points within triangle ABC that are closer to A than B **and** closer to BC than AB.

Construct and shade in the region R.