GCSE (9 – 1) Mathematics

J560/04 Paper 4 (Higher Tier)

Question Set 6

1. **(a)** **(i)** Write these numbers in standard form.

(i) 6500

(a)(i) ..... **[1]**

(ii) **(ii)** 0.0584

(ii) ..... **[1]**

(b) Work out $(4.2 \times 10^5) \times (1.8 \times 10^{-2})$, giving your answer in standard form.

(b) ..... **[1]**

2 James is taking three examination papers in Spanish.
Here are his first two results.

Paper 1: $\frac{43}{80}$ Paper 2: $\frac{38}{65}$

Paper 3 is out of 95.
The marks in each of the three papers are added together.

Find the lowest mark that James needs in Paper 3 to achieve 60% of the total marks.

..... **[4]**

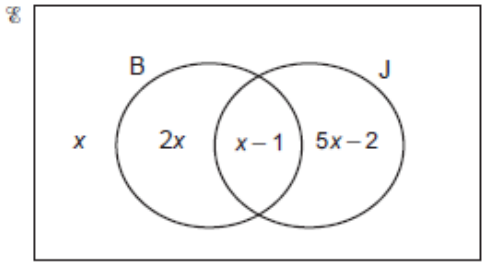
3 Three people take $2\frac{1}{2}$ hours to deliver leaflets to 270 houses.

Assuming all people deliver leaflets at the same rate, how long will it take five people to deliver leaflets to 405 houses?
Give your answer in hours and minutes.

..... hours ..... minutes **[4]**

4 In a survey, 60 students were asked whether they have a bank account (B) and whether they have a part-time job (J).

The number of students who had neither a bank account nor a part-time job was x.
The Venn diagram shows the results in terms of x.



One of the 60 students is chosen at random.

Find the probability that they have a bank account.
Show your working.

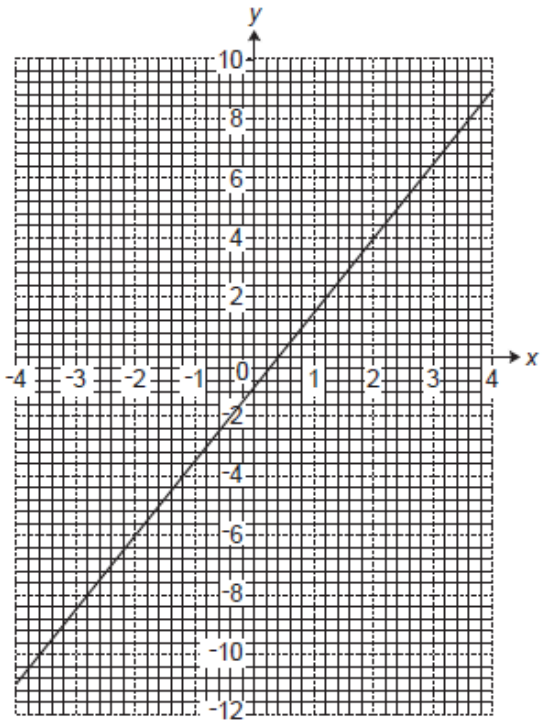
..... **[5]**

5 A cuboid measures 6 cm by 8 cm by 15 cm.
A cube has the same volume as the cuboid.

Find the surface area of the cube, giving your answer correct to 3 significant figures.

..... cm^2 **[4]**

6 **(a)** This graph shows part of a straight line.

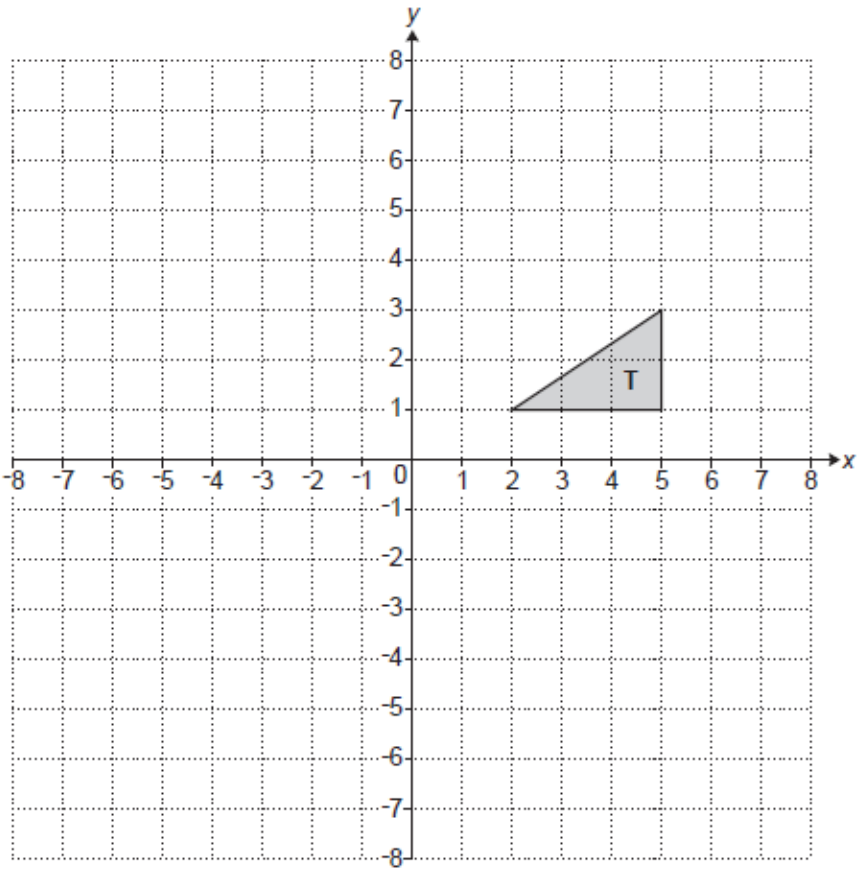


(a) Show that the gradient of the line is 2.5. **[1]**

(b) Write down the equation of the line.

(b) ..... **[2]**

7 **(a)** Triangle **T** is drawn on a coordinate grid.



(a) Translate triangle **T** by vector $\begin{pmatrix} -6 \\ 2 \end{pmatrix}$. **[2]**

(b) Describe fully the **single** transformation that is equivalent to:

- a reflection in the line $y = x$, followed by
- a reflection in the x-axis.

You may use the grid above to help you.

.....

..... **[3]**

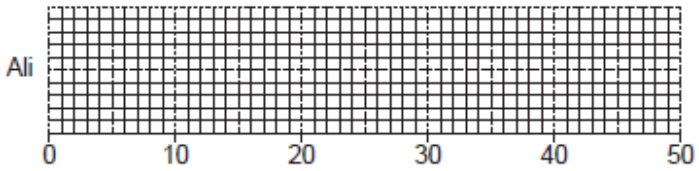
8 **(a)**

Ali and Beth take it in turns to play a computer game.
On each turn, the player achieves a score out of 50.
Ali and Beth play the computer game many times and record their scores.

(a) Ali's scores are summarised below.

- median = 31
- highest score = 38
- range = 23
- lower quartile = 24
- interquartile range = 11

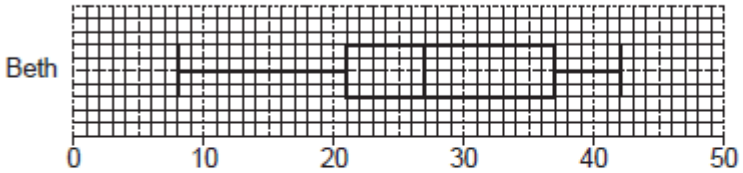
Draw a box plot to show the distribution of Ali's scores.



[3]

(b)

This box plot shows the distribution of Beth's scores.



Find the interquartile range of Beth's scores.

(b) ..... **[2]**

(c)

Kareem says

Beth was more consistent than Ali because Beth had a lower median score.

Is his statement correct?
Explain your reasoning.

.....

.....

..... **[2]**

9 (a) Here are two pieces of work.

For each one, describe the error made and give the complete correct solution.

(a)

Question:

Solve by factorisation.

$3x^2 - 2x - 5 = 0$

Solution:

$(3x + 5)(x - 1) = 0$

Therefore $x = -5/3$ or $x = 1$

Error: .....

.....

Correct solution:

[3]

(b)

Question:

Solve, giving your answers correct to 3 significant figures.

$$2x^2 - 8x + 3 = 0$$

Solution:

$$x = -(-8) \pm \frac{\sqrt{(-8)^2 - 4 \times 2 \times 3}}{2 \times 2}$$

Therefore $x = 6.42$ or $x = 9.58$

Error: .....

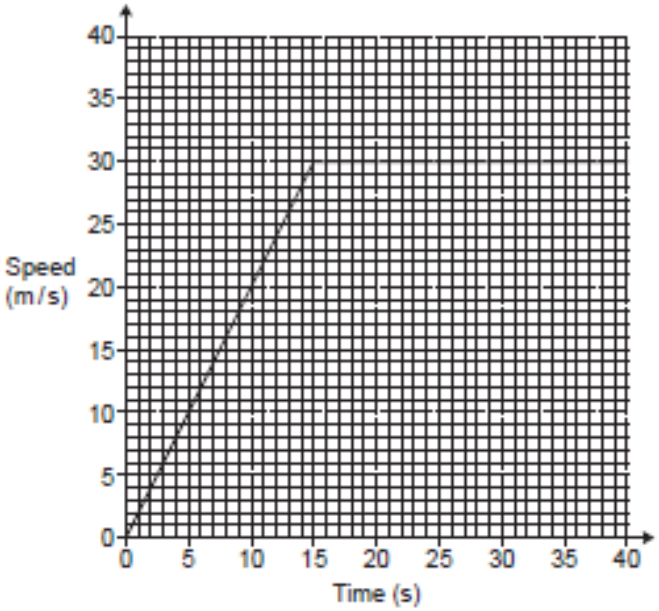
.....

Correct solution:

[3]

10 (a)

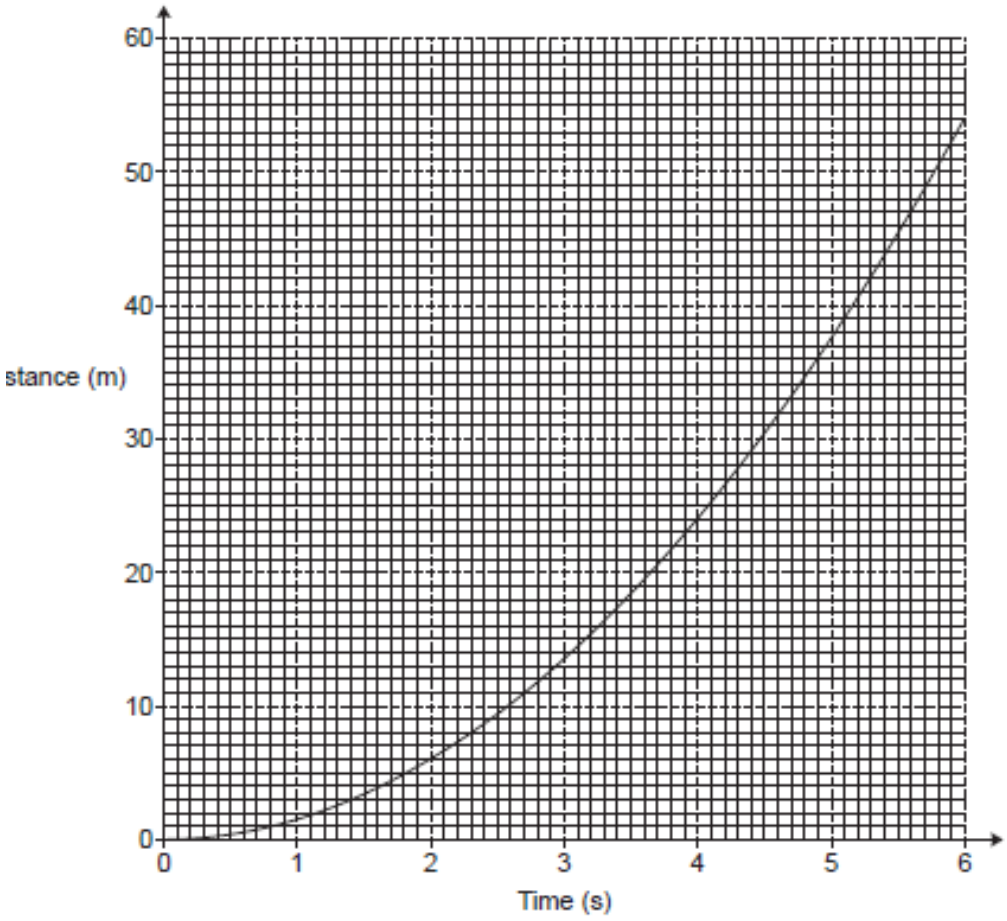
(a) The graph shows the speed of a vehicle during the first 40 seconds of motion.



Calculate the distance travelled by the vehicle during the 40 seconds.

(a) ..... m **[3]**

(b) **(i)** The graph shows the distance travelled by a particle over 6 seconds.



(i) Work out the average speed of the particle between 2 and 4 seconds.

(b)(i) ..... m/s **[2]**

(ii) Estimate the speed of the particle at 4 seconds.

(ii) ..... m/s **[4]**

Total Marks for Question Set 6 : 50