GCSE (9-1) Mathematics

J560/02 Paper 2 (Foundation Tier)

Question Set 3

1. Work out.

(a) $89 + 14$

(a) 103 [1]

(b) 17×21

(b) 357 [2]

2. Complete each statement by writing the missing value in the box.

(a) $\frac{2}{5} = \frac{4}{\boxed{10}}$ [1]

(b) $2\frac{1}{3} = \frac{\boxed{7}}{3}$ $\frac{(2\times3)+1}{3} = \frac{7}{3}$ [1]

(c) $7 \times 7 \times 7 \times 7 \times 7 = 7^{\boxed{5}}$ [1]

3. **(a)** Write 0.3 as a fraction.

(a) 3/10 [1]

(b) Write $\frac{1}{4}$ as a decimal.

(b) 0.25 [1]

4. Hannah saves an amount of money each week.
Here are the amounts, in pounds, that she saved in the first 5 weeks of 2019.

13 58 11 22 11

(a) Find

(i) the median of the five amounts,

middle number

11, 11, (13), 22, 58

(a)(i) £ 13 **[2]**

(ii) the range of the five amounts.

Biggest − Smallest

58 − 11 = 47

(ii) £ 47 **[2]**

(b) In the 6th week, she also saved some money.
The mean amount that Hannah saved each week over the 6 weeks was £22.

How much did she save in the 6th week?

6 × 22 = £132 total in 6 weeks

First 5 weeks → 11 + 11 + 13 + 22 + 58 = £115

132 − 115 = 17

(b) £ 17 **[3]**

5. A man running at a constant speed of 5 metres per second takes 66 seconds to complete a particular distance.
A horse completes the same distance running at a constant speed of 15 metres per second.

Find the difference, in seconds, in the times taken by the man and by the horse to run this distance.

Distance = speed × time $D = 5 \times 66 = 330$ metres

Horse time → $\frac{\text{Distance}}{\text{speed}}$ → $\frac{330}{15} = 22$ seconds

man time − horse time → $66 - 22 = 44$ seconds

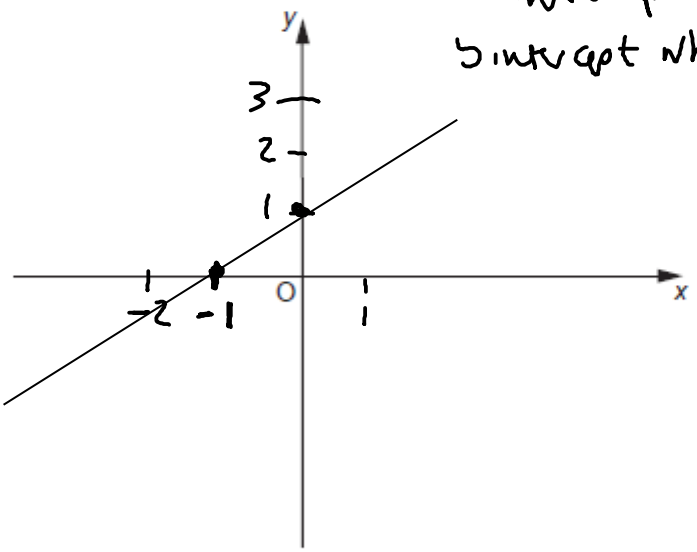
44 ..... seconds **[3]**

6. **(a)** **(i)** Sketch the graph of $y = 2$.

[2]

(ii) Sketch the graph of $y = x + 1$.

x intercept when $y = 0 \rightarrow x = -1$
y intercept when $x = 0 \rightarrow y = 1$
$(-1, 0)$ $(0, 1)$



[2]

(iii) Ceri says that the graphs of $y = 2$ and $y = x + 1$ cross at the point (2, 3).

Explain the error in her answer.

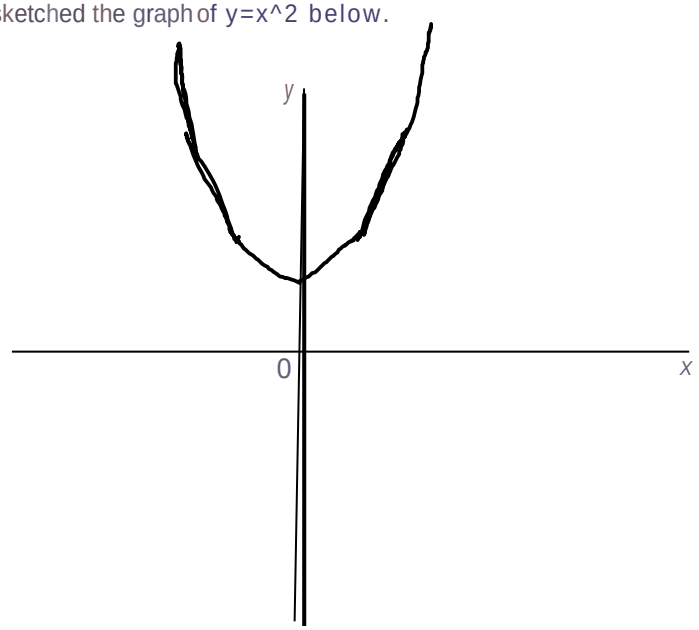
It should be (3, 2)
x y

.....

.....

[1]

(b) Oliver has sketched the graph of $y=x^2$ below.



Make two comments about the accuracy of his sketch.

(1) Not a smooth curve

(2) should be going through point (0,0)

[2]

7. Angie is planning a presentation evening.
She writes down her costs and income.

Costs	Income
10 staff each working 6 hours at £8 per hour Food: 60 meals at £8.95 each Prizes: 12 prizes at £19.99 each	60 guests each paying £5 Sponsorship £1000

Angie thinks she will make a small profit.

Use estimation to decide if Angie is correct.
Show all of your working.

costs → 6 × 8 × 10 = £480
→ 60 × 9 = £540
→ 12 × 20 = £240
→ + = £1260

Income → 60 × 5 = £300
→ £1000
→ + = £1300

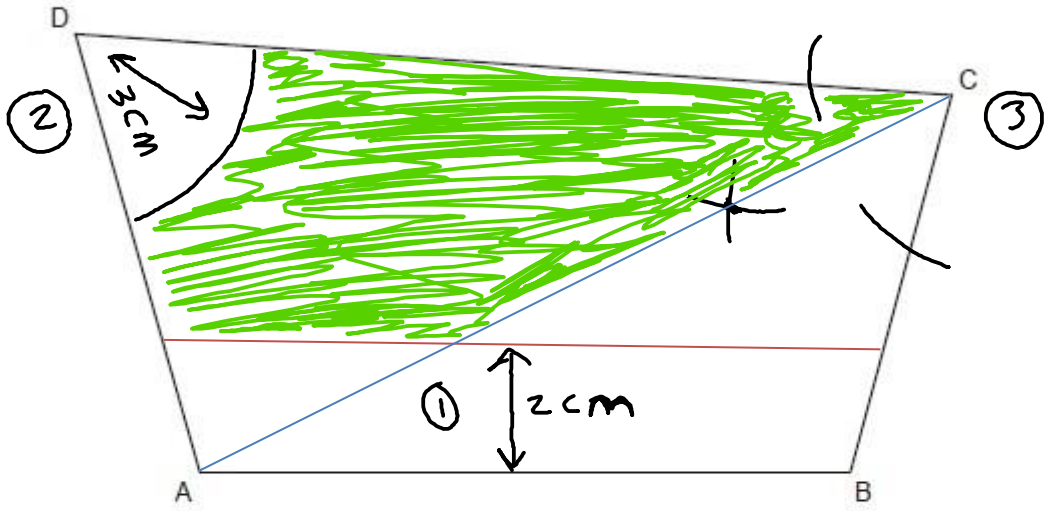
Profit = Income − cost → 1300 − 1260 = £40

Correct she will make £40

[6]

8. The diagram shows the scale drawing of a garden ABCD.

Scale: 1 cm represents 5 m



(1) straight line from middle of AB 2cm across

(2) use compass and set to 3cm. Draw arc at centre D.

(3) Bisect angle CBA so we can see which side closer to CD than CB.

A tree is to be planted in the garden so that it is

- at least 10 m from AB (1)

and

- closer to CD than CB (3)

and

- at least 15 m from D. (2)

Using a ruler and compasses only, construct and shade the region in which the tree can be planted.

5m = 1cm

10m = 2cm

15m = 3cm

[6]

9. Solve by factorising.

$x^2 + 9x + 20 = 0$

Need two numbers that multiply for 20 and add to 9.

$5 \times 4 = 20$ ✓
$5 + 4 = 9$ ✓

$x^2 + 9x + 20 = 0$

$(x+4)(x+5) = 0$

$(x+4) = 0 \rightarrow x = -4$

$(x+5) = 0 \rightarrow x = -5$

$x =$ −5 ..... or $x =$ −4 ..... **[3]**

10. On a plane, $\frac{2}{5}$ of the passengers were British.

30% of the British passengers were men.
There were 36 British men on the plane.

Find the total number of passengers on the plane.

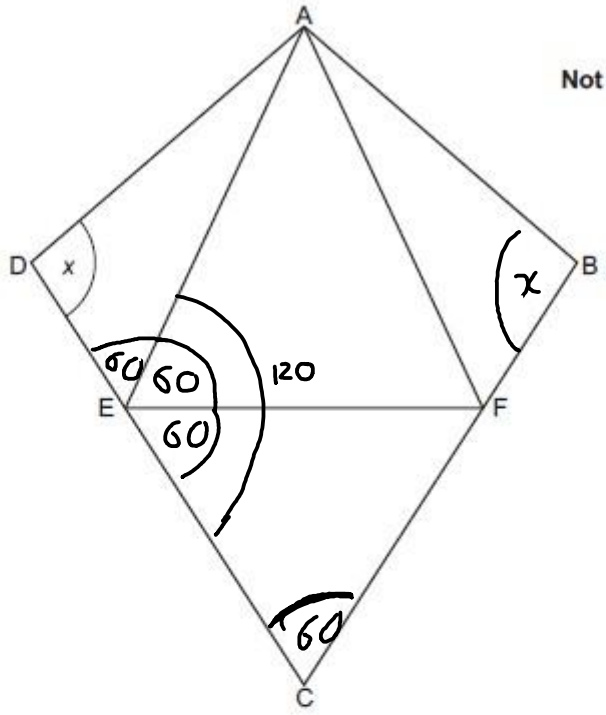
36 British men are 30% of British → $\frac{36}{3} \times 10 = 120$ total British passengers

120 British passengers are $\frac{2}{5}$ of all

$\frac{120}{2} \times 5 =$ total passengers $= 300$

300 ..... [5]

11. The diagram shows a kite, ABCD.
AFE and CEF are equilateral triangles.



(a) Write down a mathematical name for quadrilateral AFCE.

(a) kite [1]

(b) The ratio of angle DAE : angle EAF = 1 : 4.

Work out angle *x*.
Write on the diagram the values of any other angles you use in your working.

$AED = 60^\circ$ as angles on straight line $= 180^\circ$
$EAF = 60^\circ$ as all angles in equilateral $= 60^\circ$

1) $AE : EAF$
$15 : 60$

$x = 180 - (60 + 15) = 105^\circ$

(b) $x =$ 105 $^\circ$ [4]

Total Marks for Question Set 3: 50