GCSE (9-1) Mathematics

J560/02 Paper 2 (Foundation Tier)

Question Set 2

1. **(a)** **(i)** **(a)** Work out.

(i) £4.25 + £5.18

$4 + 5 = 9$

$0.25 + 0.18 = 0.43$

$9 + 0.43 = 9.43$

(a)(i) £ 9.43 **[1]**

(ii) **(ii)** $-8 + 11$

(ii) 3 **[1]**

(iii) **(iii)** -6×-9

$(-) \times (-) = +$

$(-6) \times (-9) = 6 \times 9 = 54$

(iii) 54 **[1]**

(b) **(i)** **(b)** Use one of these symbols $<$, $>$ or $=$ to make each statement true.

(i) 4.5 ..... > ..... 4.34 **[1]**

(ii) **(ii)** $\frac{3}{4}$ ..... < ..... 0.8 $3/4 = 0.75$ **[1]**

(iii) **(iii)** $\frac{3}{5}$ ..... = ... 0.6 $3/5 = 0.6$ **[1]**

2. By rounding each value to one significant figure, estimate the cost of 3.9 kg of apples at 87p per kg.

$3.9 \rightarrow 4.0$ kg

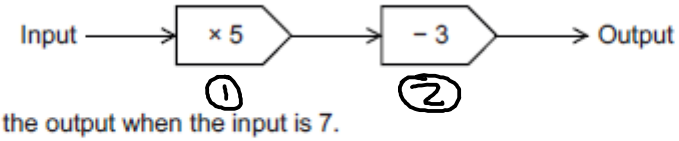
$87 \rightarrow 90$ p

$90 \times 4 = 360$ p

$= £3.60$

£ 3.60 **[2]**

3. **(a)** **(i)** Here is a function machine.



(a) **(i)** Find the output when the input is 7.

① × 5 = 35 ② 35 − 3 = 32

(a)(i) 32 **[1]**

(ii) **(ii)** Find the input when the output is 42.

Do the opposite/inverse.

② but + 3 → 42 + 3 = 45 ① but ÷ 5 → 45 ÷ 5 = 9

(ii) 9 **[2]**

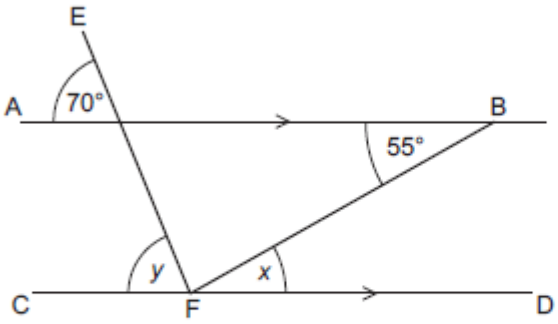
(b) The input is x and the output is y.

Write an equation for y in terms of x.

① x × 5 = 5x ② 5x − 3 = 5x − 3 = y

(b) $y = 5x - 3$ **[2]**

4. AB and CD are parallel lines.
EF and FB are straight lines.



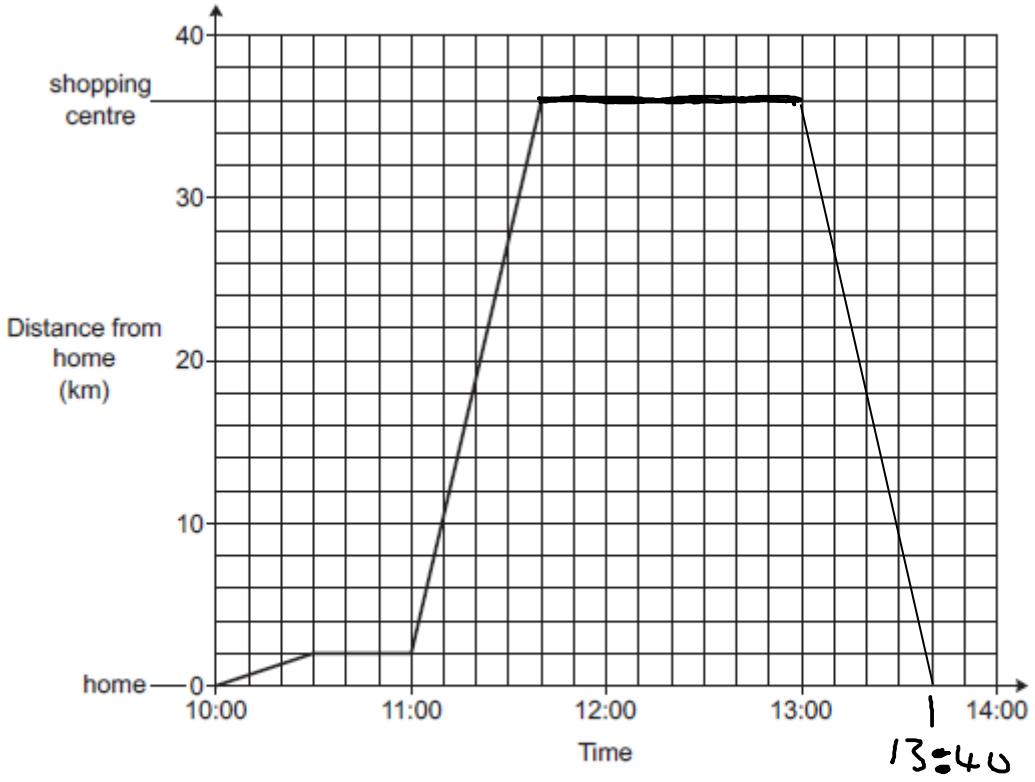
Not to scale

Complete the following statements.

$x = 55°$ because Alternate angles are equal

$y = 70°$ because Corresponding angles are equal **[2]**

5. **(a)** The graph shows Sarah's journey from her home to a shopping centre.



(a) State an assumption that has been made when the graph was drawn.

Travels at constant speed for each leg of journey. From 11 to 11:40 and 13 to 13:40.

[1]

(b) What is the distance from Sarah's home to the shopping centre?

(b) 36 km [1]

(c) Between which two times did Sarah stop?
Explain how the graph shows this.

From 10:30 to 11:00 shown on the graph by distance doesn't change during this period.

[2]

(d) **(i)** Sarah stays at the shopping centre until 13:00.
She then travels home without stopping.
Her journey home takes 40 minutes.

Complete the graph to show this information. [3]

(ii) Work out Sarah's average speed for her journey home.
Give your answer in kilometres per hour.

Speed = Distance / time

Distance = 36 km

time = 40 minutes = $\frac{2}{3}$ hours

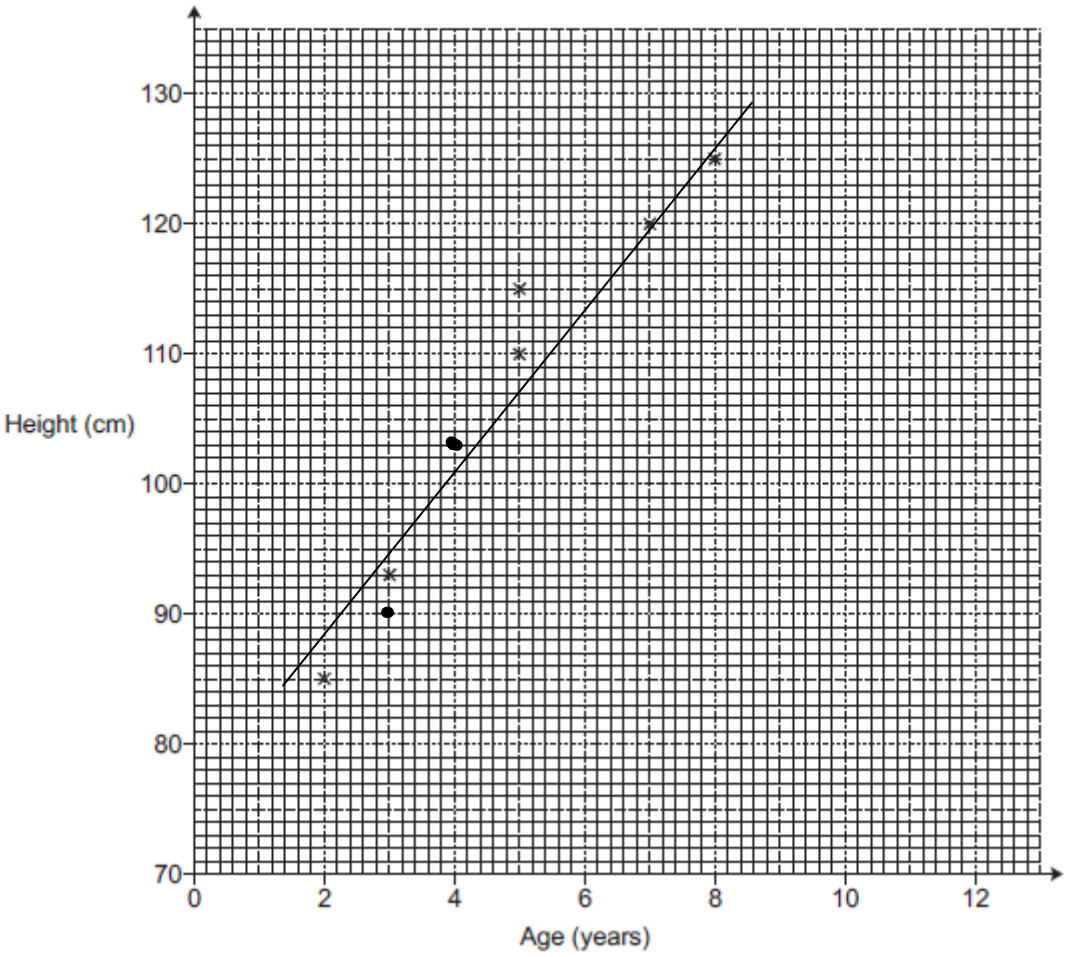
$\frac{36}{2/3} = 54$ km/h

(d)(ii) 54 km/h **[3]**

6. (a) A doctor records the ages, in years, and the heights, in centimetres, of 10 girls.

Age (years)	2	5	3	7	5	8	3	6	9	4
Height (cm)	85	115	93	120	110	125	90	117	127	103

The points for the first six girls are plotted on the scatter diagram.



(a) Plot the points for the remaining four girls. **[2]**

(b) Describe the type of correlation shown in the scatter diagram.

Positive correlation **[1]**

(c) The doctor says that by using a line of best fit on the scatter diagram, the height of a 6-year-old girl is around 95 cm.

Does the scatter diagram support the doctor's statement?
Explain your reasoning.

No , using a line of best fit she is taller at 113 cm.

[2]

(d) Explain why the scatter diagram and line of best fit should not be used to estimate the height of a 12-year-old girl.

That would be extrapolation. We dont have enough data in that range to make a prediction.

[1]

7. Kate is 5 feet 2 inches tall.
Alice is 1.57 metres tall.
Alice says that she is taller than Kate.

Use the conversions below to decide if Alice is correct.

12 inches = 1 foot 1 inch = 2.5 centimetres

Alice → 1.57 metres = 157 cm

Kate → 5 feet 2 inches → (5 × 12) + 2 = 62 inches

62 inches → cm → 62 × 2.5 = 155 cm

Alice is taller by 2 cm

Alice is correct and is 2 cm taller.

[4]

8. (a) Ed has a card shop.

(a) He buys a particular card for £1.20 and sells it for £1.68.

Calculate his percentage profit on this card.

1.68 − 1.20 = 0.48

$\frac{0.48}{1.20} \times 100 = 40\%$

(a) 40 % [3]

(b) Ed's profit on "Good Luck" cards in 2018 was £360.
This was a decrease of 20% on his profit in 2017.

Work out Ed's profit on "Good Luck" cards in 2017.

$2017 \times 0.8 = 2018$

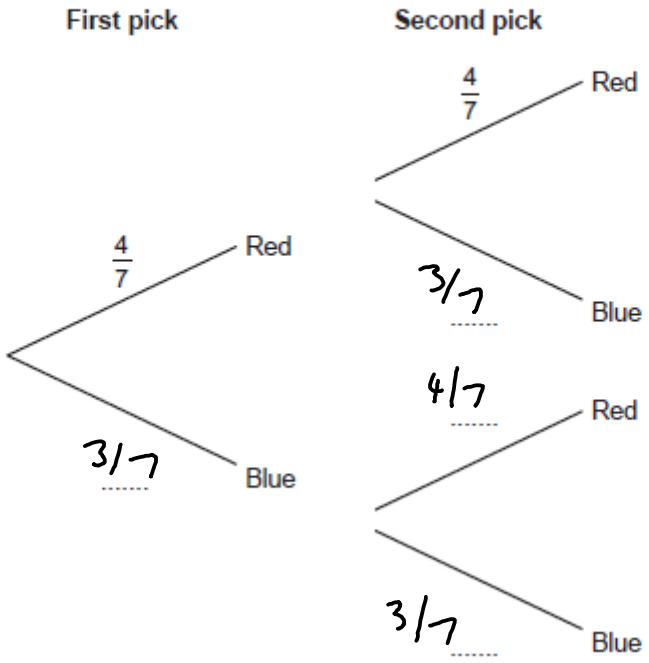
$x \times 0.8 = 360$

$x = \frac{360}{0.8} = £450$

(b) £ 450 **[3]**

9. (a) A bag contains 4 red counters and 3 blue counters only.
Jack picks a counter at random and then replaces it.
Jack then picks a second counter at random.

(a) Complete the tree diagram.



[2]

(b) Work out the probability that Jack picks two red counters.

$(4/7) \times (4/7) = 16/49$

16/49

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

10. One day, a group of people had a driving test.
40 of this group were men and the rest were women.
$\frac{3}{5}$ of the men and $\frac{2}{3}$ of the women passed the driving test.
The number of men and women that passed the driving test was the same.

Work out the number of women that took the driving test that day.

$\frac{3}{5}$ of 40 men passed $= 3/5 \times 40 = 24$ men passed

so same number of women passed $= 24$ women passed

24 is 2/3 of the women so total women $\rightarrow \left(\frac{24}{2}\right) \times 3 = 36$

36

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

Total Marks for Question Set 2: 50