

**Modified Enlarged 36pt**  
**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**

**Thursday 6 June 2019 – Morning**

**GCSE (9–1) Mathematics**

**J560/02 Paper 2 (Foundation Tier)**

**Time allowed: 1 hour 30 minutes  
plus your additional time allowance**

**YOU MAY USE:**

**geometrical instruments  
tracing paper**

**DO NOT USE:**

**a calculator**

**Please write clearly in black ink.**

**Centre number**

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**Candidate number**

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**First name(s)** \_\_\_\_\_

**Last name** \_\_\_\_\_

**READ INSTRUCTIONS OVERLEAF**



# **INSTRUCTIONS**

**Use black ink. You may use an HB pencil for graphs and diagrams.**

**Answer ALL the questions.**

**Read each question carefully before you start to write your answer.**

**Where appropriate, your answers should be supported with working. Marks may be given for a correct method even if the answer is incorrect.**

**Write your answer to each question in the space provided.**

**Additional paper may be used if required but you must clearly show your candidate number, centre number and question number(s).**

# **INFORMATION**

**The total mark for this paper is 100.**

**The marks for each question are shown in brackets [ ].**

**No calculator can be used for this paper**

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**Answer ALL the questions.**

**1 (a) Work out.**

**(i)  $\pounds 4.25 + \pounds 5.18$**

**(a)(i)  $\pounds$  \_\_\_\_\_ [1]**

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

**(ii) \_\_\_\_\_ [1]**

**(iii)  $-6 \times -9$**

**(iii) \_\_\_\_\_ [1]**

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

**(i)  $4.5$  \_\_\_\_\_  $4.34$  [1]**

**(ii)  $\frac{3}{4}$  \_\_\_\_\_  $0.8$  [1]**

**(iii)  $\frac{3}{5}$  \_\_\_\_\_  $0.6$  [1]**

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

**£ \_\_\_\_\_ [2]**  
**5**

**3 (a) Complete each statement.**

**(i)  $\frac{3}{7} = \frac{\quad}{28}$  [1]**

**(ii)  $4\frac{1}{2} = \frac{\quad}{2}$  [1]**

**(b) Work out.**

$$\frac{2}{3} - \frac{1}{5}$$

**(b) \_\_\_\_\_ [2]**

**4 Work out.**

**(a)  $0.7 \times 0.3$**

**(a) \_\_\_\_\_ [1]**

**(b)  $0.48 \div 6$**

**(b) \_\_\_\_\_ [1]**

**5 (a) Complete the following.**

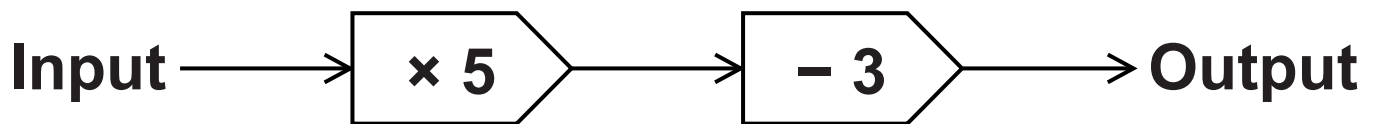
**(i)  $5^2 =$  \_\_\_\_\_ [1]**

**(ii)  $\sqrt[3]{64} =$  \_\_\_\_\_ [1]**

**(b) Work out  $2^3 \times \sqrt{49}$  .**

**(b) \_\_\_\_\_ [2]**  
**7**

**6 Here is a function machine.**



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

**(a)(i) \_\_\_\_\_ [1]**

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

**(ii) \_\_\_\_\_ [2]**

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

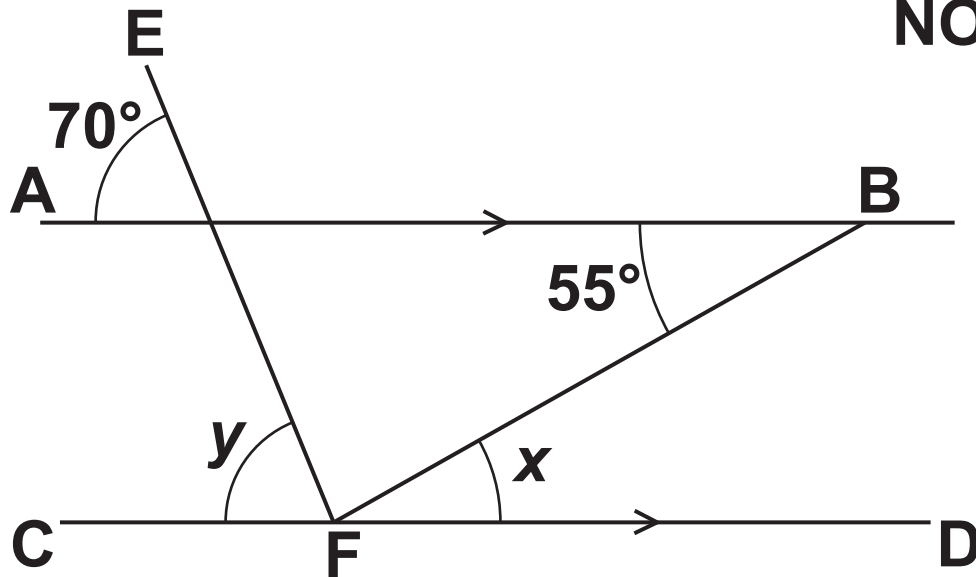
**Write an equation for  $y$  in terms of  $x$ .**

**(b) \_\_\_\_\_ [2]**



- 7 AB and CD are parallel lines.  
EF and FB are straight lines.

NOT TO SCALE



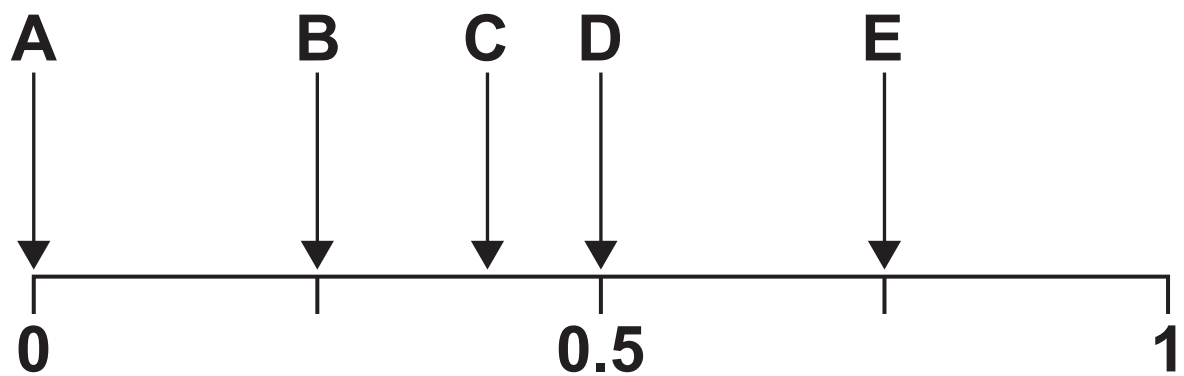
Complete the following statements.

$x = 55^\circ$  because \_\_\_\_\_

$y = 70^\circ$  because \_\_\_\_\_ [2]

- 8** Darren has these 20 crayons in a box:  
8 blue  
4 red  
5 black  
3 green.

**(a)** He chooses a crayon at random from the box.



**Which arrow shows the probability that this crayon is**

**(i) blue,**

**(a)(i) Arrow \_\_\_\_\_ [1]**

**(ii) yellow,**

**(ii) Arrow \_\_\_\_\_ [1]**

**(iii) not black.**

**(iii) Arrow \_\_\_\_\_ [1]**  
**10**

**(b) Darren buys 16 more crayons that are either blue or red. He puts these in the box with the 20 crayons he already has.**

**He now picks a crayon at random from the box.**

**The probability that he picks a BLUE crayon is evens.**

**How many RED crayons did he buy?**

**(b) \_\_\_\_\_ [3]**

**9 The graph opposite shows Sarah's journey from her home to a shopping centre.**

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

\_\_\_\_\_  
\_\_\_\_\_ **[1]**

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

**(b) \_\_\_\_\_ km [1]**

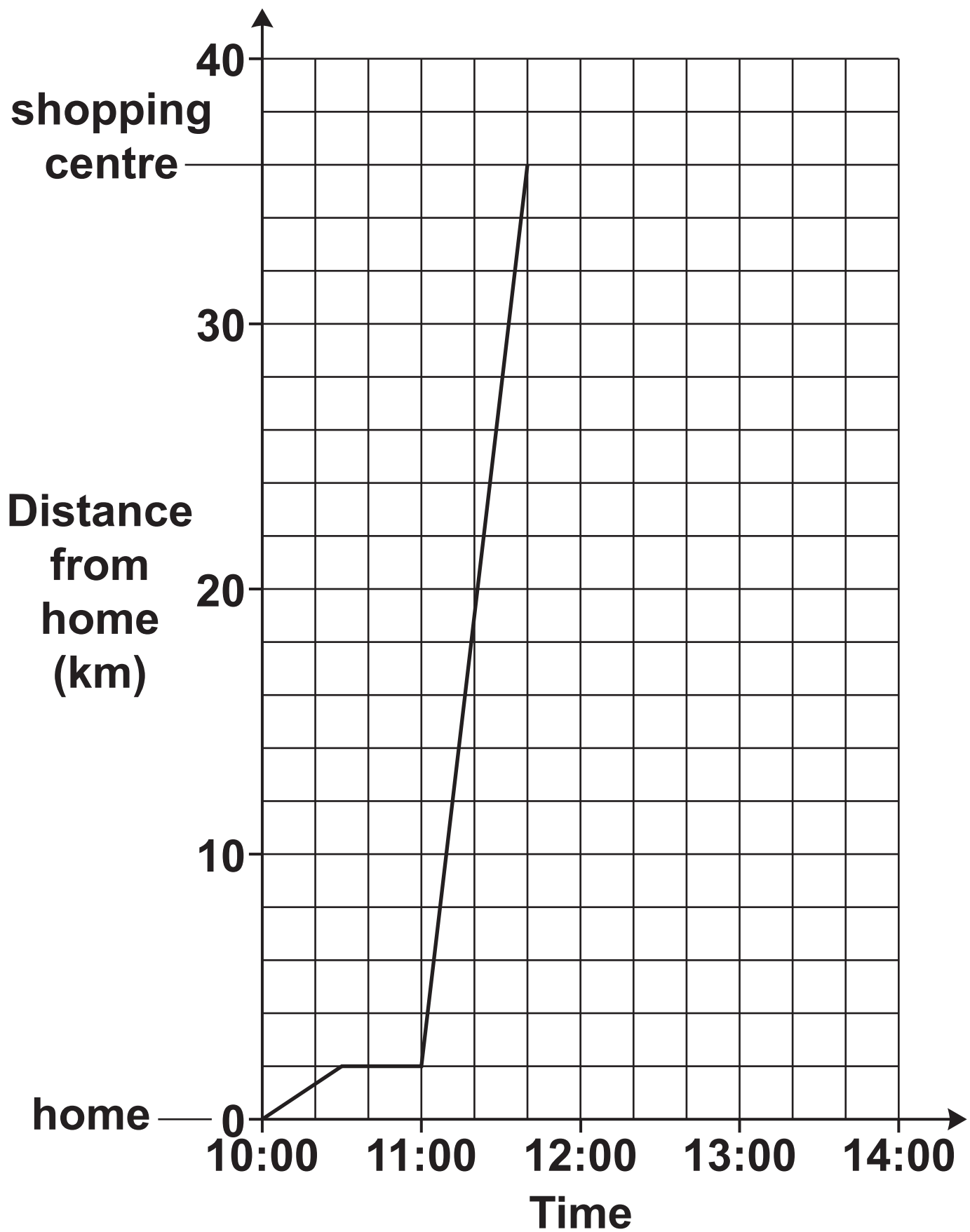
**(c) Between which two times did Sarah stop?**

**Explain how the graph shows this.**

**From \_\_\_\_\_ to \_\_\_\_\_**

**shown on the graph by \_\_\_\_\_**

\_\_\_\_\_  
\_\_\_\_\_ **[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.**

**(d)(ii) \_\_\_\_\_ km/h [3]**

**10 (a) Simplify fully.**

**(i)  $3t + 5u - 2t + 3u$**

**(a)(i) \_\_\_\_\_ [2]**

**(ii)  $6a \times 2a^2$**

**(ii) \_\_\_\_\_ [2]**

**(b) Make  $x$  the subject of the formula**  
 **$y = x^2 - 1$ .**

**(b) \_\_\_\_\_ [2]**



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- 11 A doctor records the ages, in years, and the heights, in centimetres, of 10 girls.**

<b>Age (years)</b>	<b>2</b>	<b>5</b>	<b>3</b>	<b>7</b>	<b>5</b>	<b>8</b>
<b>Height (cm)</b>	<b>85</b>	<b>115</b>	<b>93</b>	<b>120</b>	<b>110</b>	<b>125</b>

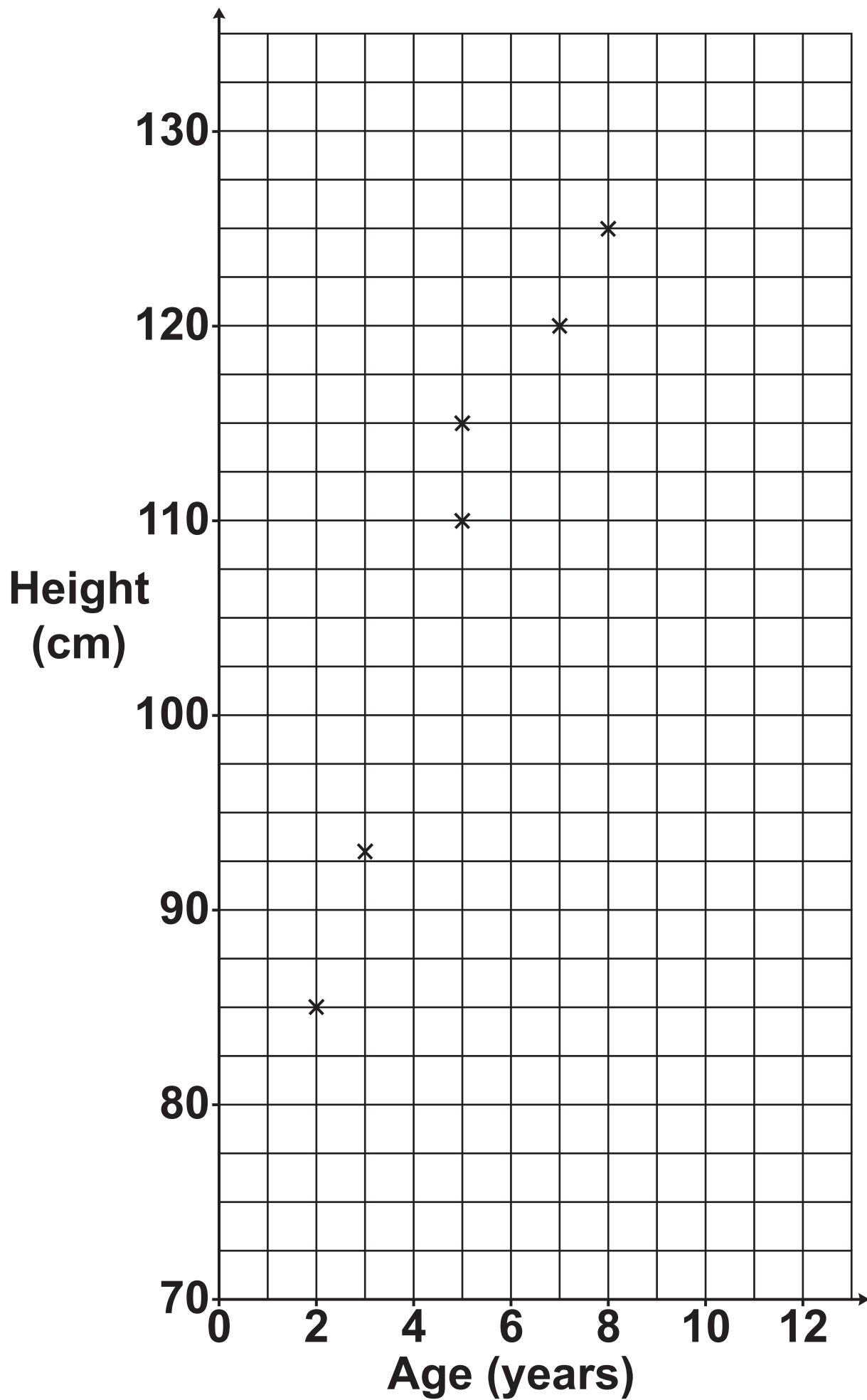
<b>Age (years)</b>	<b>3</b>	<b>6</b>	<b>9</b>	<b>4</b>
<b>Height (cm)</b>	<b>90</b>	<b>117</b>	<b>127</b>	<b>103</b>

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

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

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

\_\_\_\_\_ **[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.**

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**[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.**

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**[1]**

- 12 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.**

<p><b>12 inches = 1 foot</b> <b>1 inch = 2.5 centimetres</b></p>
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**13 Rashid is making cupcakes using these ingredients.**

**Cupcake ingredients**

**Makes 20 cupcakes**

**120 g flour**

**140 g butter**

**4 eggs**

**60 g cocoa powder**

**50 ml of water**

**(a) How many eggs does he need to make 60 cupcakes?**

**(a) \_\_\_\_\_ [1]**

**(b) How much butter is needed to make 5 cupcakes?**

**(b) \_\_\_\_\_ g [2]**

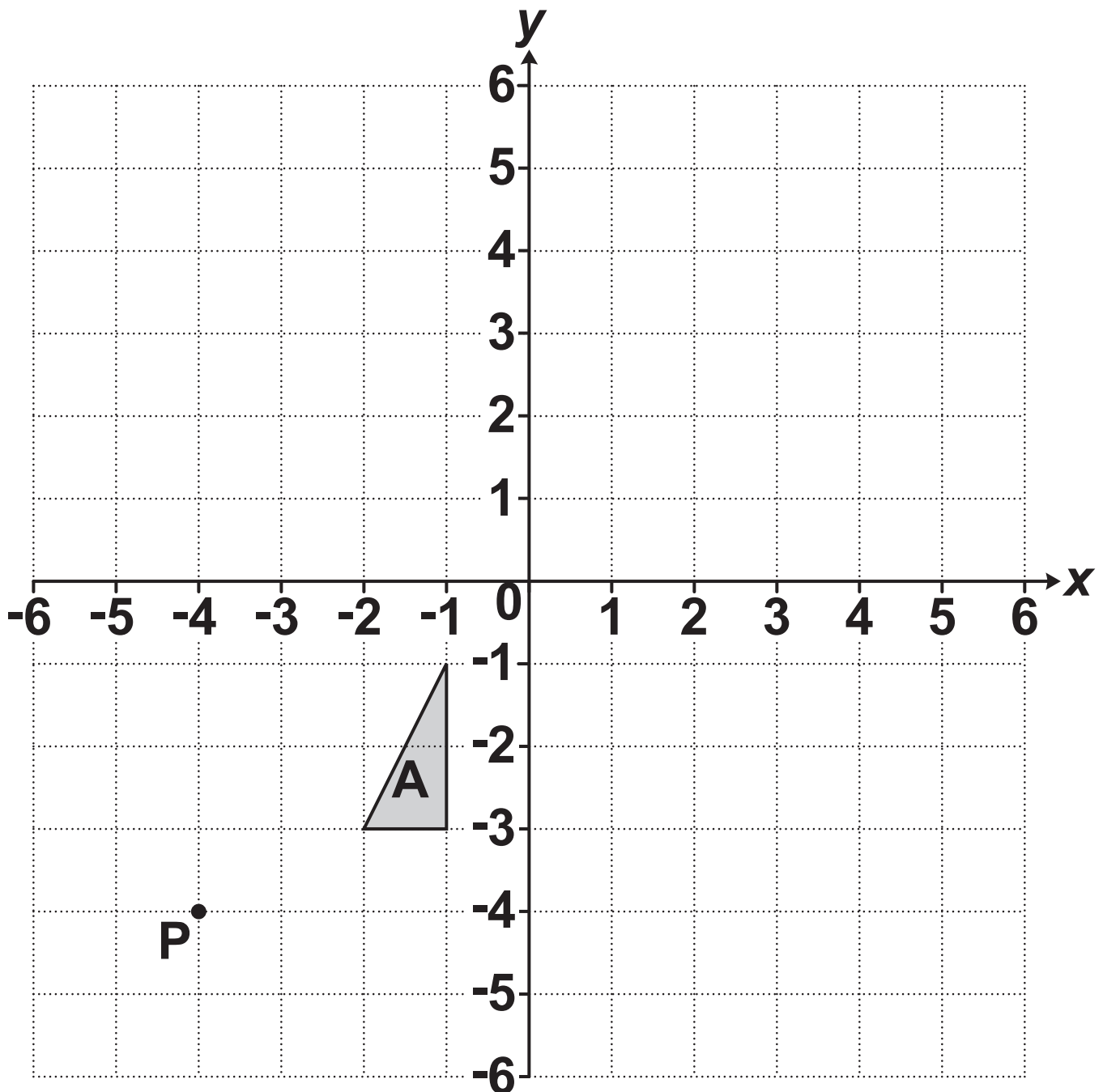
**(c) Rashid has 210 g of cocoa powder and plenty of the other ingredients. He says that he can make at least 75 cupcakes.**

**Is he correct?  
Explain your reasoning.**

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**[3]**

**14 Triangle A is drawn on the grid below.**



- (a) Enlarge triangle A with scale factor 3 from the centre of enlargement P. Label the image B. [3]**



**(b) Describe fully the SINGLE transformation that maps triangle B onto triangle A.**

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**[3]**

**15 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.**

**(a) \_\_\_\_\_ % [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.**

**(b) £\_\_\_\_\_ [3]**

**16 (a) A sunflower grows at a rate of 4 cm each day.**

**How many days does it take to grow from a height of 80 cm to more than 1.06 m?**

**(a) \_\_\_\_\_ [3]**

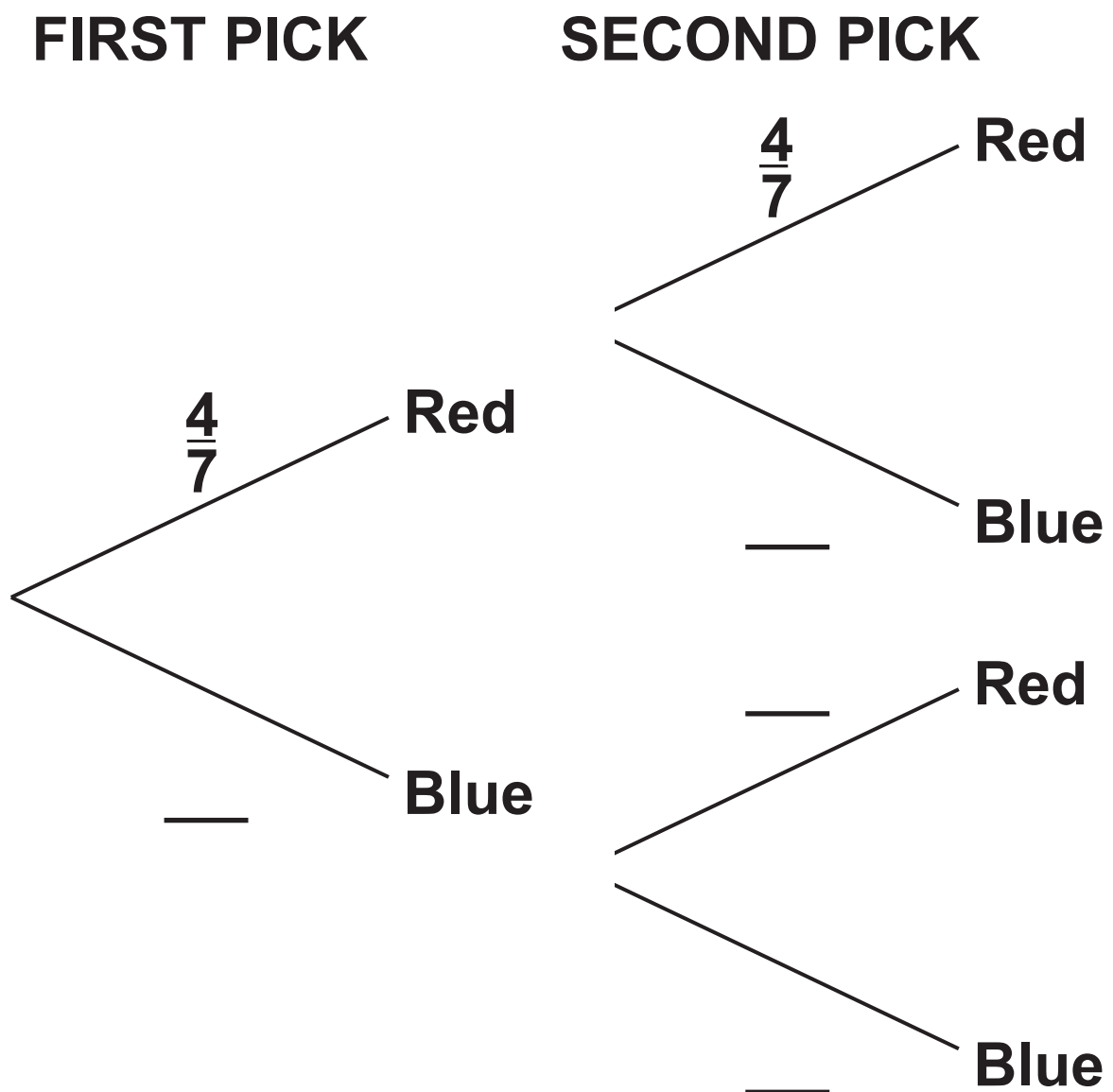
**(b) If the sunflower grows at a faster rate, how would this affect your answer to part (a)?**

**\_\_\_\_\_ [1]**

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- 17 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.**

**(b) \_\_\_\_\_ [2]**

**18 Adam buys some theatre tickets in a sale.**

**The normal prices are:**

**£80 for each adult  
£40 for each child.**

**Ticket Sale**

**All prices reduced by 15%**

**(2% booking fee applies)**

**In the sale, the prices are reduced by 15%.**

**Adam buys 2 adult tickets and 1 child ticket at the sale price.**

**A 2% booking fee is then added to the total cost of the tickets.**



**Calculate the total amount that Adam must pay.**

**£ \_\_\_\_\_ [6]**

- 19 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.**

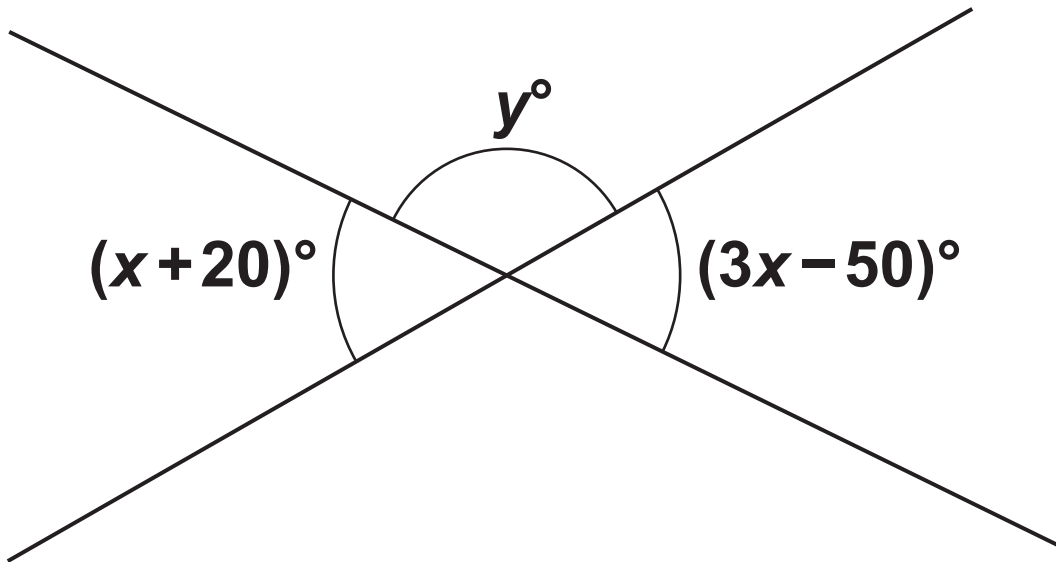
**Work out the number of women that took the driving test that day.**

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**[5]**

**20 The diagram shows two intersecting straight lines.**

**NOT TO SCALE**



**Find the value of  $y$ .**

**$y =$  \_\_\_\_\_ [6]**

**END OF QUESTION PAPER**

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