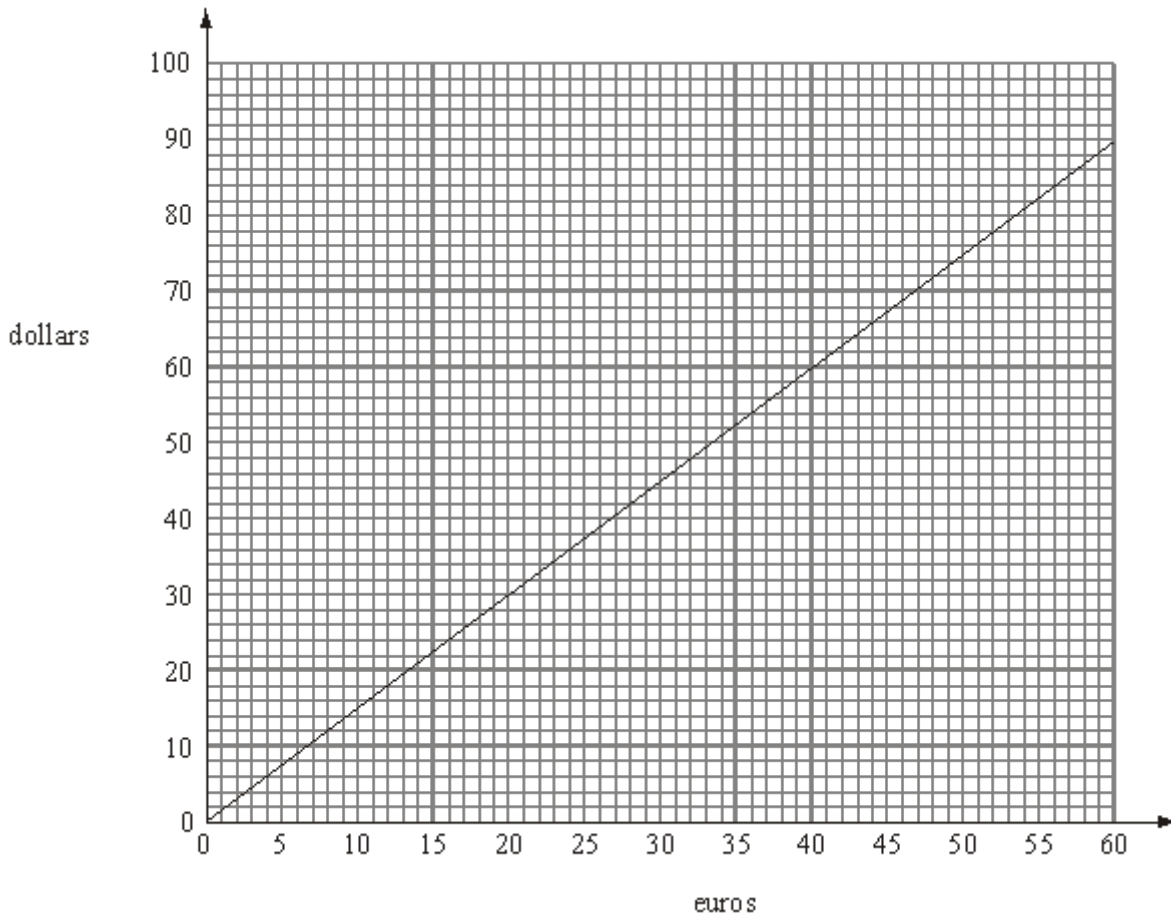


Q1.



The conversion graph can be used to change between euros and dollars.

(a) Use this graph to change 30 euros into dollars.

..... dollars

(1)

(b) Use this graph to change 90 dollars into euros.

..... euros

(1)

Bill changes 100 euros to dollars.

(c) Change 100 euros to dollars.

..... dollars

(2)
(Total 4 marks)

Q2. You can use this formula to change a temperature C , in $^{\circ}\text{C}$, to a temperature F , in $^{\circ}\text{F}$.

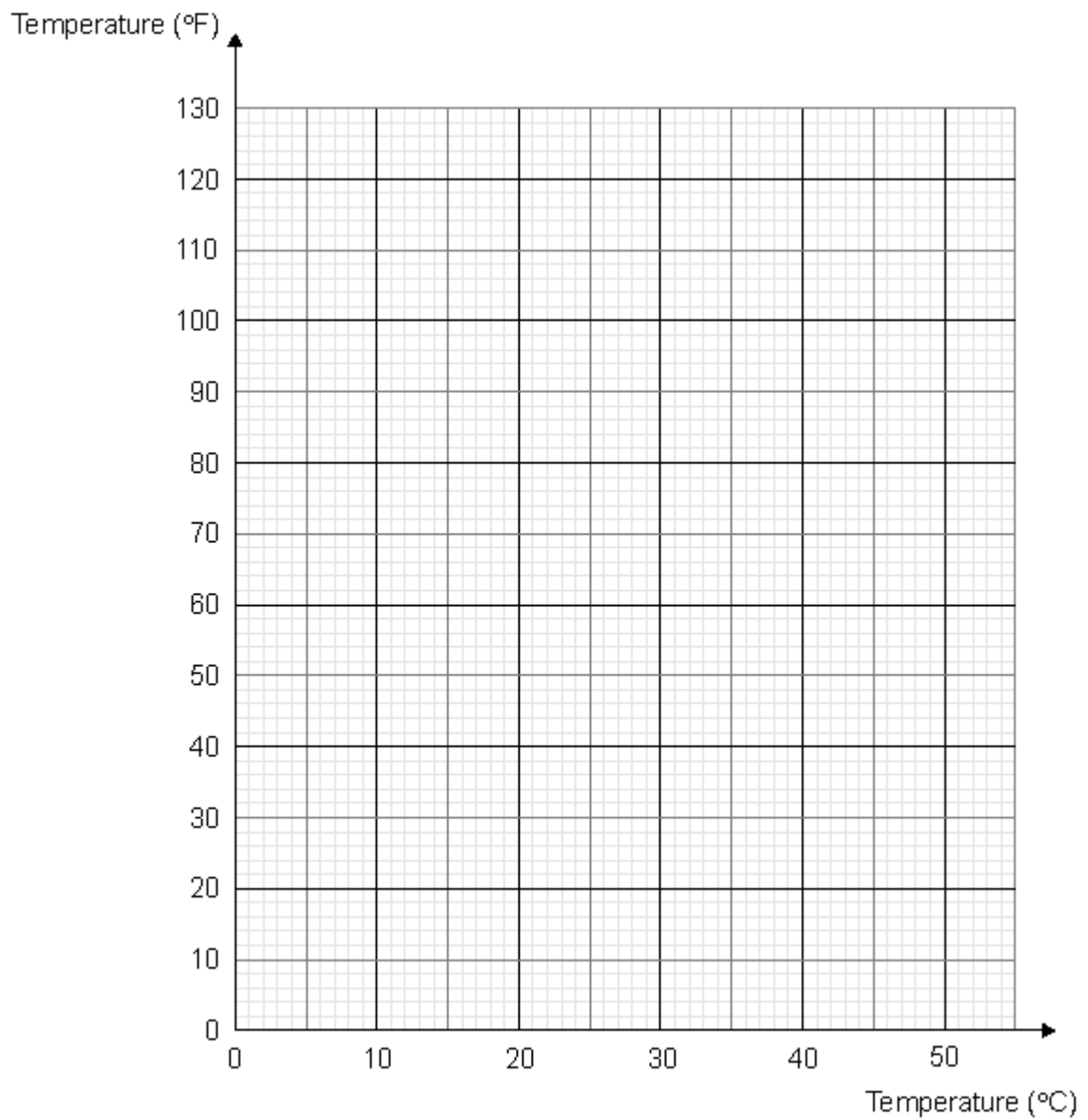
$$F = 1.8C + 32$$

(a) Use the formula to change 20°C into $^{\circ}\text{F}$.

..... $^{\circ}\text{F}$

(2)

(b) On the grid below, draw a conversion graph that can be used to change between temperatures in $^{\circ}\text{C}$ and temperatures in $^{\circ}\text{F}$.



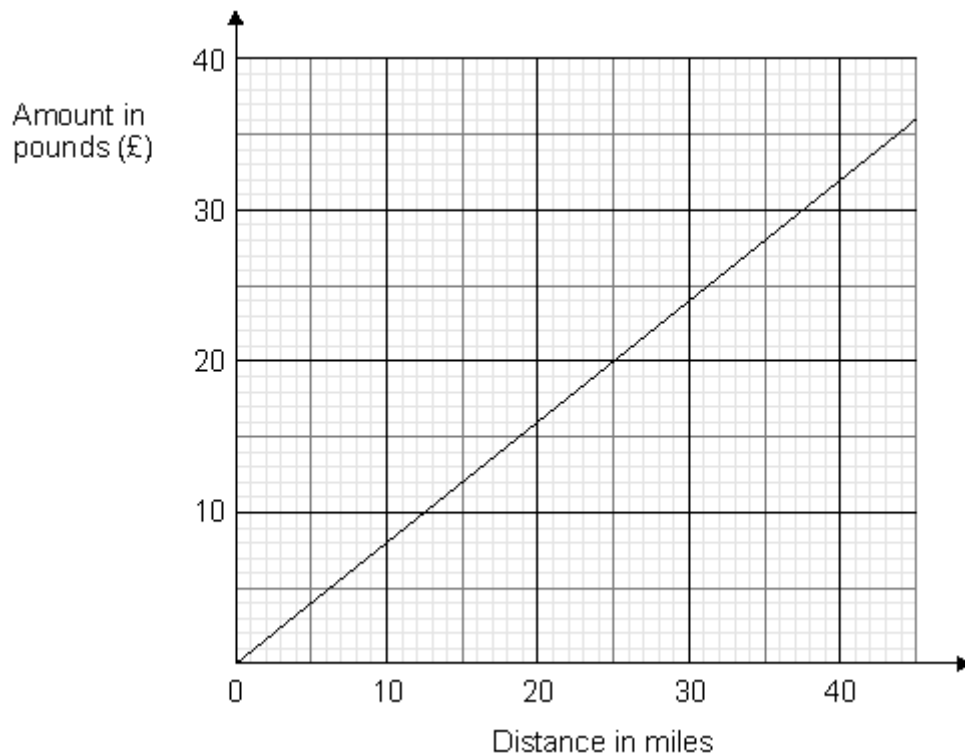
(3)

(c) Use your graph to change 100 °F into °C.

..... °C

(1)
(Total 6 marks)

- Q3.** Sophie's company pays her 80p for each mile she travels.
The graph can be used to work out how much her company pays her for travel.



Sophie travels 20 miles.

- (a) Work out how much her company pays her.

£

(1)

Sophie's company paid her £60

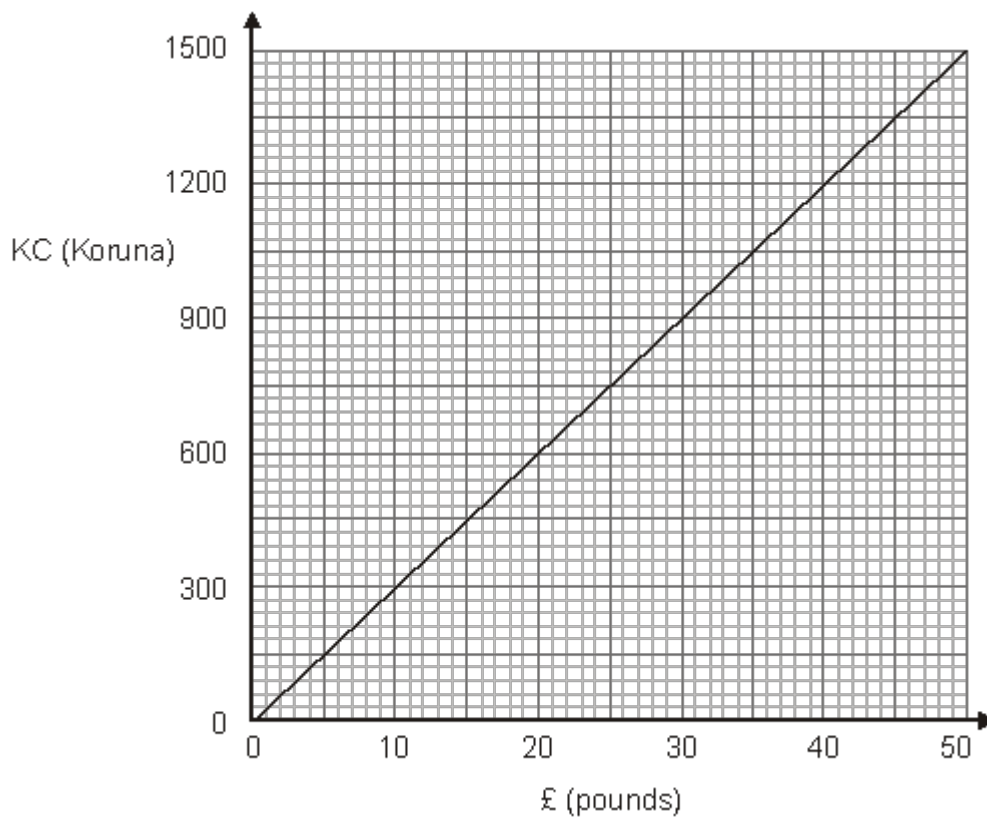
- (b) Work out the distance Sophie travelled.

..... miles

(2)
(Total 3 marks)

Q4. Barbara goes on holiday to Prague. The currency in Prague is the Koruna (KC).

This graph can be used to convert between £ (pounds) and KC (Koruna).
The exchange rate is £1 = 30 KC.



Barbara bought some things in London.
She saw the same things on sale in Prague.

The table shows the cost in £ (pounds) and the cost in KC (Koruna).

	Cost in London	Cost in Prague
--	----------------	----------------

Item	£ (pounds)	KC (Koruna)
Headphones	£15	450 KC
Suitcase	£34	750 KC
Music player	£26	810 KC

Barbara thinks the total cost of these things was more in London than in Prague.

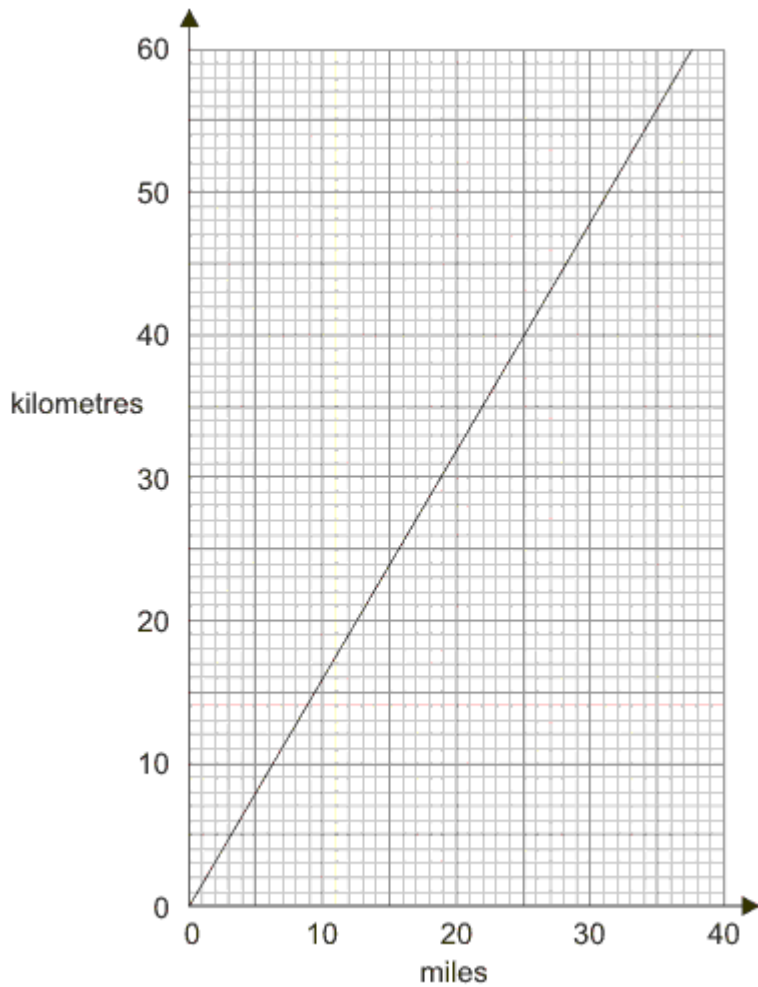
Is she correct?

Give a reason for your answer.

You must show all your working.

(Total 5 marks)

Q5. This conversion graph can be used to change between miles and kilometres.



(a) Use the graph to change 30 miles to kilometres.

..... kilometres

(1)

(b) Use the graph to change 40 kilometres to miles.

..... miles

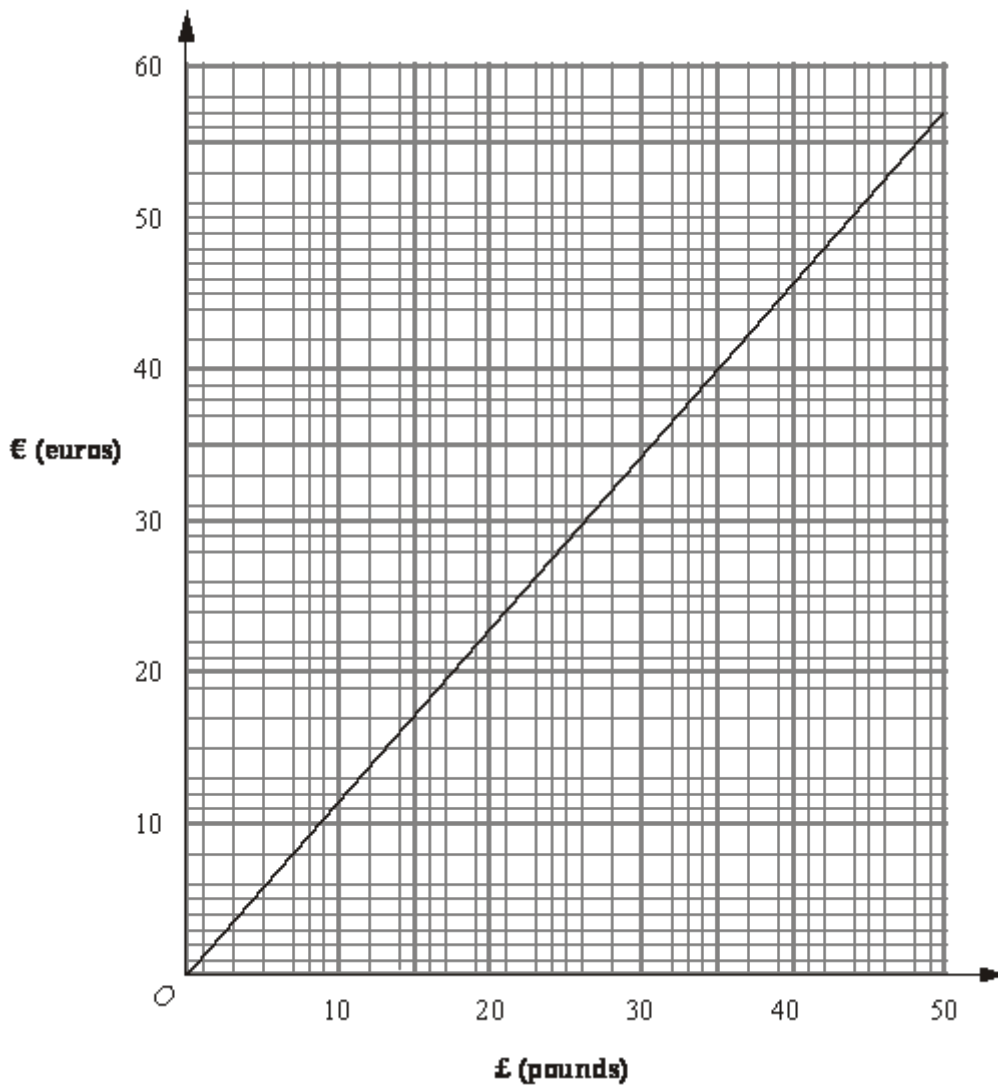
(1)

(c) Change 100 miles to kilometres.


..... kilometres

(2)
(Total 4 marks)

Q6. This is a graph that can be used to convert between £ (pounds) and € (euros).



This is part of a clipping from a newspaper showing the exchange rates for some countries.

UK	£1 =	
Australia	.....	1.91 dollars
Brazil	.....	3.01 rials
China	.....	11.16 yen
Canada	.....	1.76 dollars
Euro	.....
Hong Kong	.....
Japan	.....

- (a) The exchange rate for the euro has been smudged.
Find an estimate for the exchange rate for the euro.

.....

(2)

Ali wishes to buy a villa in Spain.
She has a budget of £150 000
In a brochure she sees these three villas.

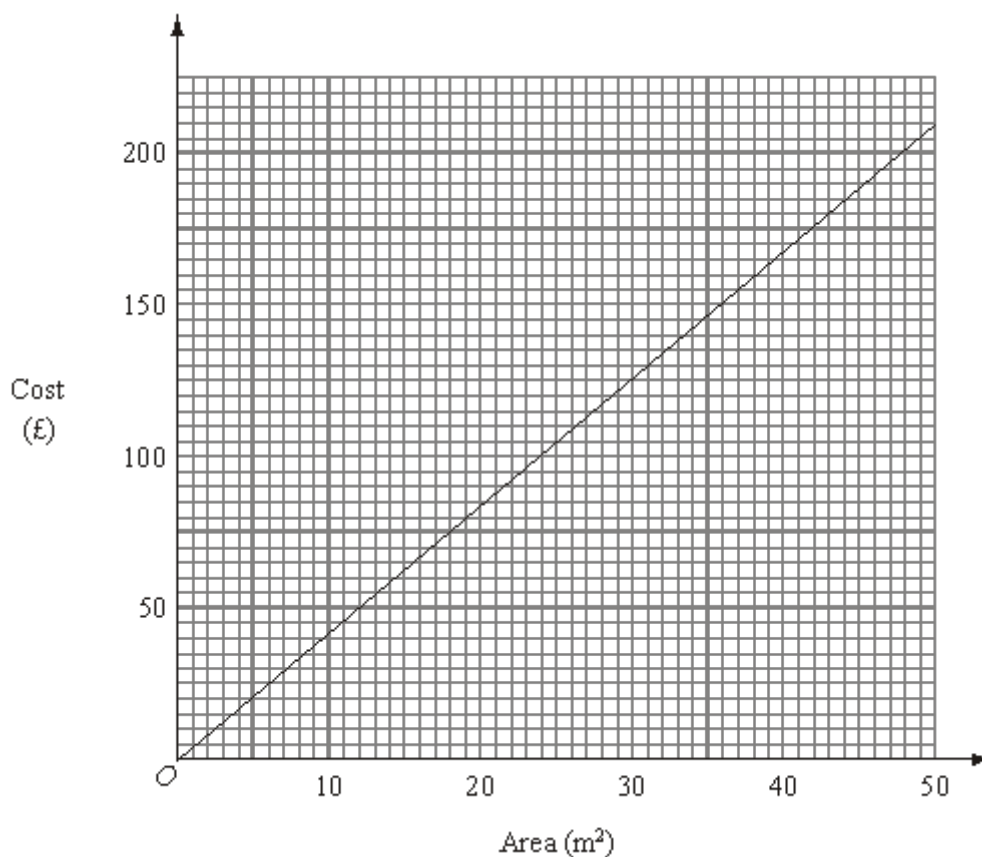
<p>Villa A</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>€155 000</p> </div>	<p>Villa B</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>€170 000</p> </div>	<p>Villa C</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>€200 000</p> </div>
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- (b) Which of these three villas can Ali afford to buy?
You must show your working.

.....

(3)
(Total 5 marks)

Q7. John cleans carpets of different areas.
He uses this graph to work out the cost of cleaning a carpet.



A carpet has an area of 30 m².

(a) Use the graph to find the cost of cleaning this carpet.

£

(1)

It costs £150 to clean another carpet.

(b) Use the graph to find the area of this carpet.

..... m²

(1)

A rectangular carpet has a length of 8.6 m.
It has a width of 5 m.

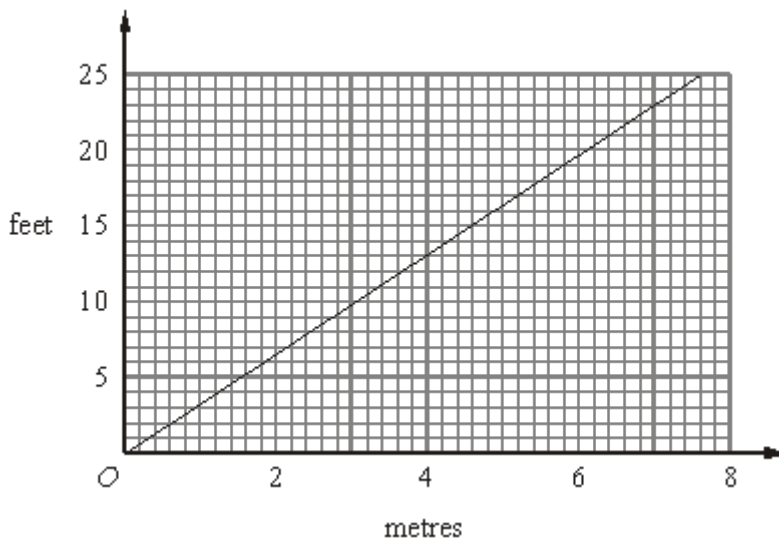
(c) Work out the cost of cleaning this carpet.

£

(3)

(Total 5 marks)

Q8.



This conversion graph can be used to change between metres and feet.

(a) Use the conversion graph to change 6 metres to feet.

..... feet (1)

(b) Use the conversion graph to change 8 feet to metres.

..... metres (1)

Robert jumps 4 metres.
James jumps 12 feet.

(c) (i) Who jumps furthest, Robert or James?

.....

(ii) How did you get your answer?

.....
.....

(2)
(Total 4 marks)

M1.

	Answer	Mark	Additional Guidance
(a)	45	1	B1 for 44 – 46
(b)	60	1	B1 cao
(c)	150	2	M1 for a complete method e.g. reading from graph at 50 euros and doubling (allow ± 1 mm tolerance in reading from graph) A1 for 140 – 160 SC: B2 for 200
Total for Question: 4 marks			

M2.

	Working	Answer	Mark	Additional Guidance
(a)		68	2	$\frac{9}{5} \times 20 + 32$ M1 for A1 cao
(b)	Table of values 10 20 30 40 50 50 68 86 104 122 2 or Use $y = mx + c$ With $m = \frac{9}{5}$, $c = 32$	Single line from (0, 32) to (50, 122)	3	B3 for correct single straight line from (0, 32) to (50, 122) B2 for at least 3 points correctly plotted (ft from (a)) and joined with line segments or 3 correct points plotted two of which must be the extremes with no joining or a single line of gradient $\frac{9}{5}$ passing through (0,32) B1 for 2 correctly plotted points ft from (a) or a single line of gradient $\frac{9}{5}$ or a single line with positive gradient passing through (0,32)

				or 2 correct pairs of values, may include (20,68) from (a) if correct]
(c)		37.8	1	B1 for answer in range 36 - 39 or ft from line drawn ($\pm 2\text{mm}$) <i>NB : Whole question needs to be clipped together</i>
Total for Question: 6 marks				

M3.

	Working	Answer	Mark	Additional Guidance
(a)	0.80×20 OR reading from graph at distance = 20 miles	16	1	B1 cao
(b)	$\pounds 20 = 25 \text{ miles}$ $25 \times 3 = 75$ OR $60 \div 0.8 = 75$	75	2	M1 for using $\pounds 20 = 25 \text{ miles}$ oe and intention to multiply OR M1 for $60 \div 0.8$ OR M1 for reading from the graph and an attempt to scale up. le 37×2 or 38×2 or 12×6 or 12.5×6 or 13×6 oe And A1 72-78 inclusive
Total for Question: 3 marks				

M4.

Working	Answer	Mark	Additional Guidance
London: £15, £34, £26 (£75) → 450, 1020, 780 (2250) KC Prague: 450, 750, 810 KC (2010KC) → £15, £25, £27 (£67) £ to KC is $\times 30$; KC to £ is $\div 30$.	Yes. Cheaper in Prague (More in London)	5	M1 conversion method (\times or \div as appropriate) or evidence of use of graph (seen, or implied, by at least lines or evidence of conversion by marks on axes) for at least one figure. M1 (dep) conversion applied to 3 figures or totals (converted figures must be stated, marks on graph insufficient) A1 converted figures shown (all three individual items or totals converted correctly; NB: no tolerance on graph) M1 totalling converted amounts C1 (dep on at least M1) comparison of "totals" and correct conclusion Eg "2250KC" > "2010KC", "£75" > "£67" so cheaper to buy in Prague.
			Total for Question: 5 marks

M5.

	Working	Answer	Mark	Additional Guidance
(a)		48	1	B1 for an answer in the range 47.5 to 48.2
(b)		25	1	B1 cao
(c)	32×5 16×10 100×1.6	155 to 165	2	M1 for complete method reading from graph then multiplying by a suitable scale factor. Eg 1.6×100 , 8×20 , 16×10 , 32×5 , 40×4 , $48 \times 3 \frac{1}{3}$ or valid use of answer to (a) or (b) A1 for answer in the range 155 to 165 or ft on their answers to either (a) or (b)
			Total for Question: 4 marks	

M6.

		Working	Answer	Mark	Additional Guidance
	(a)		£1 = 1.15 euros	2	M1 for reading off one of say £10, £20, £50, etc and dividing their result by 10, 20, 50, etc A1 for an answer in the range 1.05 to 1.25 inc.
FE	(b)	From graph, £15 = €17.25 £150000 = €172500 A – yes B - yes C - no OR From graph, €15.5 = £13.5, so €155000 = £135000 From graph, €17 = £14.8, so €170000 = £148000 From graph, €20 = £17.4, so €200000 = £174000 OR £150000 × “answer to (a)” = €172500 A – yes B – yes C – no Without the use of a calculator, division by “(a)” is not likely	A – yes B - yes or no C - no	3	M1 for a suitable reading from the graph A1 for converting to euros (€172500 ± €2500) C1 for correct comparison to price of the villas OR M1 for a suitable reading from the graph for the price of one of the villas A1 for converting to pounds (±£2000) C1 for correct comparison to price of the villas for their ‘correct’ conversions OR M1 for £150000 × “answer to (a)” A1 for €172500 ± €2500 C1 for correct comparison to price of the villas
					Total for Question: 5 marks

M7.

	Working	Answer	Mark	Additional Guidance
(a)		£123-£127	1	B1 £123-£127 inclusive
(b)		35-36	1	B1 35-36 inclusive
(c)	$8.6 \times 5 = 43 \rightarrow$ "£180"	£175-£185	3	M1 8.6×5 A1 43 A1 answers in the range £175-£185 SC: B2 for 43
Total for Question: 5 marks				

M8.

	Answer	Mark	Additional Guidance
(a)	20	1	B1 for 19 to 21
(b)	2.4	1	B1 for 2.3 to 2.5
(c)(i) (ii)	Robert	2	B1 for Robert with a correct conversion (may be evidenced on the graph) (B1 for 'Robert' with a valid explanation or James with a correct conversion) (may be evidenced on the graph) Note: 4m = 13 feet, 12 ft = 3.6m
Total for Question: 4 marks			

E1. Part (a) was done well by more than three quarters of the candidates.

The most common incorrect answers here were 42.5 (from incorrectly interpreting the vertical scale) and 20 (from reading the wrong scale).

Part (b) was done well by the vast majority of the candidates. In part (c), just over half the candidates were able to score both marks for changing 100 euros to dollars. A common inaccurate approach here was to start with 60 euros (= \$90), and then to add \$10 for every 5 euros increase.

##

Failure to substitute correctly and poor arithmetic led candidates down in part (a). Instead of multiplying 20 by 1.8 for the first part of the formula, many added instead giving a final answer of 53.8. Others had difficulty with multiplying by the decimal 1.8, some rounded this to 2 instead. The lack of a table for pairs of values in part (b) meant that many candidates were quite disorganised in their working which led to some errors. Where the formula was used correctly, points were generally well-plotted and joined with a straight line although some candidates lost a mark as their line did not extend all the way from (0,32) to (50,122). Many candidates whose line was incorrect did score 1 mark for drawing a straight line through (0,32). Values were read accurately for part (c) and candidates were awarded a mark for this even if the straight line was incorrect. Correct substitution into the formula was an acceptable method but several candidates substituted 100 incorrectly as if to convert Centigrade to Fahrenheit as in part (a).

##

For part (a) this question was answered correctly by the majority of candidates. The major mistake seen was the decimal point in the wrong place i.e. 1.60 or 1600. Quite a few did not use the graph; they multiplied 20 by 0.8 or 80. There were also a few who added 20 and 80 to get either 100 or 1

For part (b) most candidates attempted this question, with around half gaining full marks. Most of the candidates with the incorrect answers failed to gain the M1 mark because they showed no intention to multiply. The most common error was to read the scale on the graph incorrectly, mainly by inverting the £s and miles. Very few candidates showed the working of $60 \div 0.8$.

##

Candidates could either use the graph or the given rate for conversion. Most preferred to

use the rate, though poor arithmetical process when multiplying or dividing by 30 again spoilt many answers. The question asked for total costs to be compared, so candidates who only compared the costs of individual items could not gain the full marks. Those usually the graph sometimes made errors in reading off the values from the scale, even though these led to exact values. Examiners had difficulty in awarding marks where presentation was poor, and it was difficult to isolate sound working as evidence for the award of method marks.

##

In part (a), whilst correctly answered by the majority of candidates, 19 (30km into miles), 52 and 58 were common mistakes. Part (b) was usually answered correctly.

In part (c) it was rare to see any working supporting an answer which was often outside the acceptable range. 150 was a typical example of this where, it is presumed, candidates read 10 miles = 15 km from the graph and then used a scale factor of 10. Since this would have been assuming a 2-stage operation, no credit was given.

Many candidates calculated the conversion by a form of a 'build up' method, taking several readings from the graph. This had mixed success. Another popular error was to read off 10 miles correctly as 16 km but then because 102 is 100 their reading of 16 was also squared. A significant number of candidates attempted to convert 100 km into miles.

E7. Parts (a) and (b) of this question were well answered. In part (c) the best candidates set out a product and answer with correct units also shown. There was evidence that some candidates arrived at the correct area but misread the graph, usually giving £160 as the answer. Some worked out the perimeter rather than the area, or gave the area (43) as the answer. It was encouraging to find that most candidates were willing to have a go at this multi-stage problem.

E8. All candidates made good attempts at this question. Part (a) was very well done but in part (b) many candidates could not read the horizontal scale correctly with '2.2' being an extremely popular incorrect response. Several candidates wrote their answer without a decimal point, possibly by reading from 8m and then estimating the feet.

In Part (c) most recognised that Robert jumped further but where there was no valid statement, no marks were scored. Many scored both available marks in (c) either by providing one correct conversion or by demonstrating they could do the conversion by

appropriate markings on the graph. Some candidates misread the scale again, often losing one of the marks in (c). A few thought that James jumped the furthest and occasionally 'they both jumped the same distance' was seen.