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Centre number						Candidate number				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

B292B

MATHEMATICS B (MEI)

Paper 2 Section B (Foundation Tier)

FRIDAY 14 JANUARY 2011: Morning

DURATION: 1 hour

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

Candidates answer on the question paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Geometrical instruments

Scientific or graphical calculator

Tracing paper (optional)

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

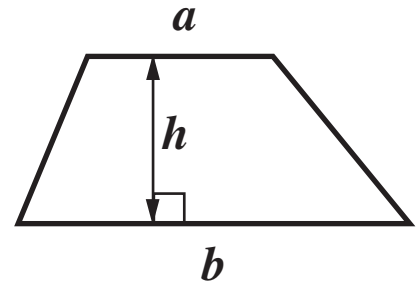
- Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Show your 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 necessary but you must clearly show your candidate number, centre number and question number(s).
- Answer ALL the questions.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- Section B starts with question 10.
- You are expected to use a calculator in Section B of this paper.
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- The total number of marks for this Section is 50.

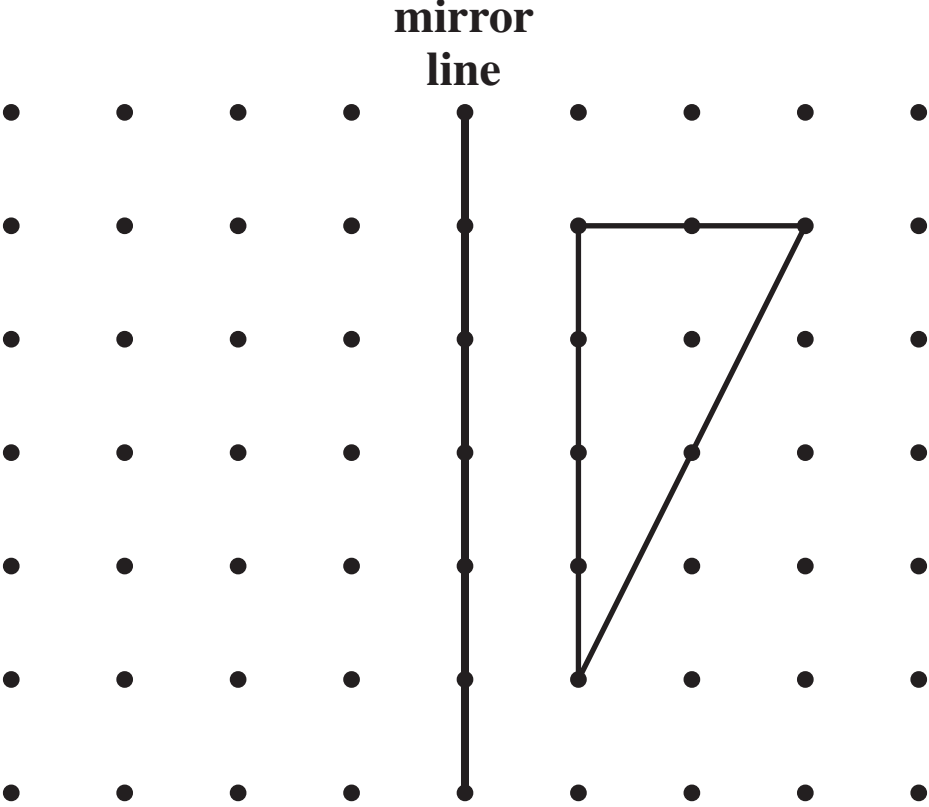
FORMULAE SHEET: FOUNDATION TIER

$$\text{Area of trapezium} = \frac{1}{2} (a + b)h$$



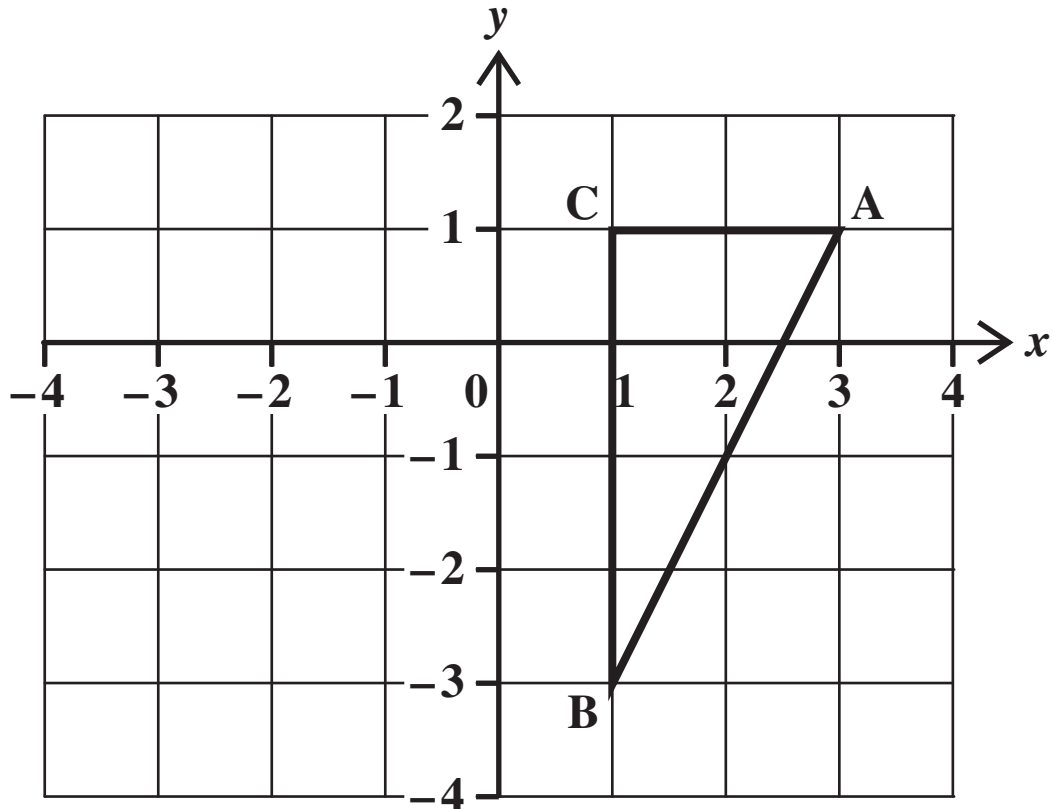
$$\text{Volume of prism} = (\text{area of cross-section}) \times \text{length}$$

10 (a) Look at the diagram below.



A triangle is drawn on a dotted grid.
Draw the reflection of the triangle in the mirror line.
[2 marks]

(b) The same triangle is shown below on a coordinate grid.



(i) Mark the midpoint of the line AB. Label it M [1 mark]

(ii) Write down the coordinates of M [1 mark]

(_____ , _____)

(iii) Plot the point $(-3, -2)$

Label it D [1 mark]

- 11 (a) Mr Digance, the geography teacher, buys resources for his department.
Parts of his bill are missing.**

Fill in the three missing parts. [3 marks]

12 geography books @ £5.89 = £_____

_____ maps @ £2.40 = £14.40

Total = £_____

- (b) Mr Digance has three class sets of books.
There are 32 books in each set.
Each book is 8 mm thick.**

**Will all of the books fit on a shelf that is 75 cm long?
Explain your answer. [3 marks]**

_____ because _____

12 Write down the next three terms in each of the three sequences below.

(a) The sequence of odd numbers. [1 mark]

1 , _____ , _____ , _____

(b) The sequence which doubles each time. [1 mark]

1 , _____ , _____ , _____

(c) The sequence of square numbers. [1 mark]

1 , _____ , _____ , _____

- 13 A game uses 9 tiles.
There are 3 large circles.
2 small circles.
2 large squares.
2 small squares.**

Chloe takes one of these tiles at random.

What is the probability that it is

- (a) a small circle, [1 mark]**

- (b) a circle of any size, [1 mark]**

- (c) NOT a large square? [1 mark]**

- 14 (a) Packets of Wheatigrains usually contain 450 g.
Special offer packets contain 15% extra.**

**How much EXTRA is in a special offer packet?
[2 marks]**

_____ g

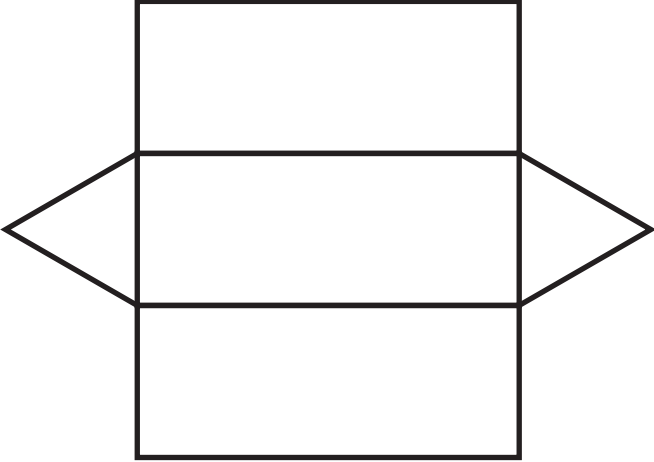
- (b) The price of a car is usually £5850
The price is reduced by 23%**

Find the reduction in price. [2 marks]

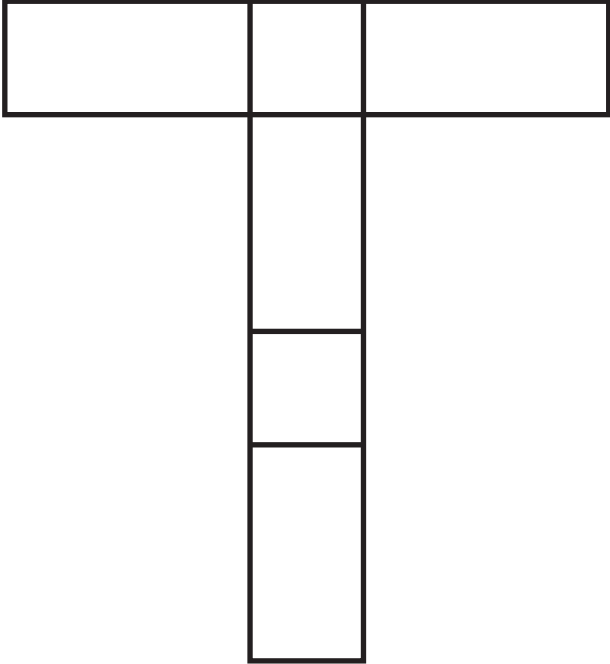
£ _____

15 Write down the names of the 3-D shapes for which these are nets. [3 marks]

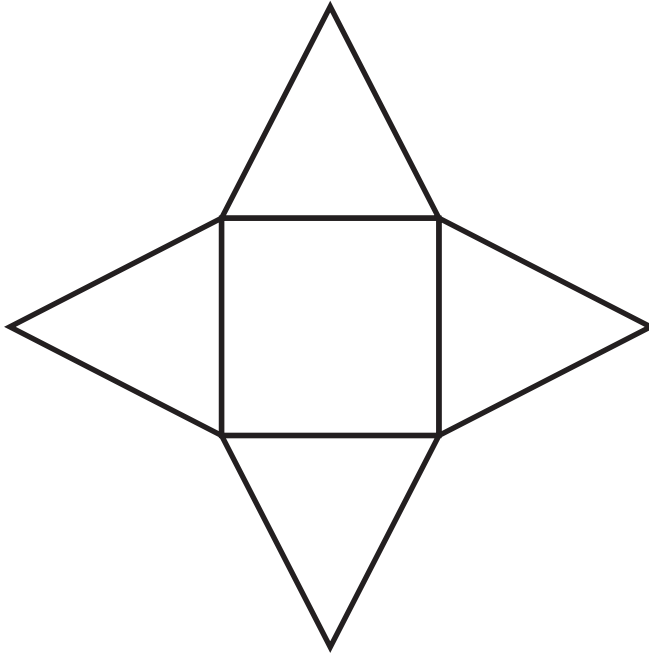
(a)



(b)



(c)

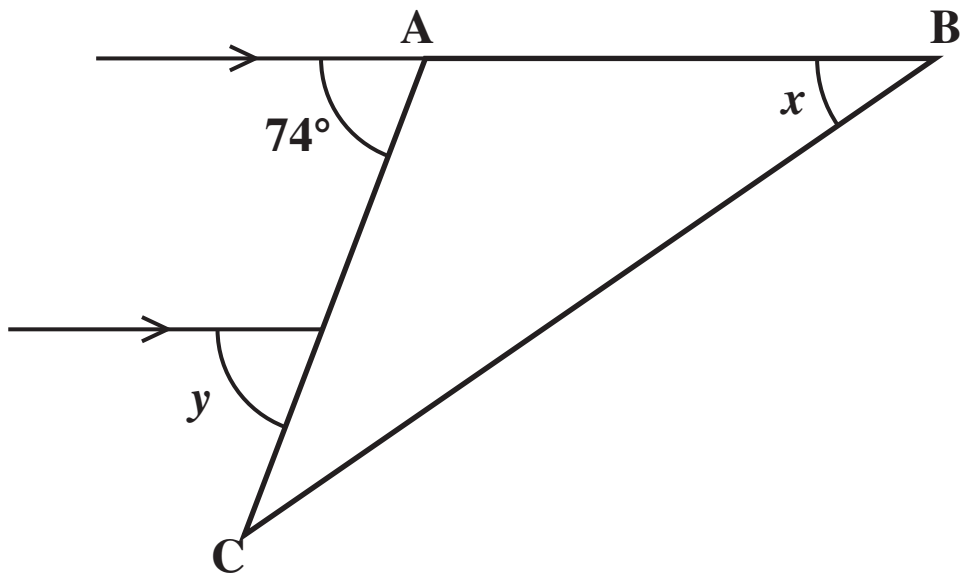


16 Multiply out

$3(2x + 10)$.
[2 marks]



- 17 Look at the diagram below.
It is not to scale.



In this diagram $AB = AC$.

Find angle x .
Give your reasons. [3 marks]

$x =$ _____ $^{\circ}$ because _____

Find angle y .
Give your reasons. [2 marks]

$y =$ _____ $^{\circ}$ because _____

- 18 (a) Using your calculator, find both square roots of 3
Give your answers correct to 2 decimal places.
[2 marks]**

_____ , _____

- (b) Write down the cube root of 1000
[1 mark]**

- (c) Write down the next prime number after 19
[1 mark]**

- (d) Calculate 2^5
[1 mark]**

19 Look at the Exchange Rates below.

Australian dollars (AUD) to UK pounds (£) 1 AUD = £0.46

New Zealand dollars (NZD) to UK pounds (£) 1 NZD = £0.38

Joseph goes on holiday. He has £1000 to spend.

He buys 800 Australian dollars (AUD), and uses the rest of the £1000 to buy New Zealand dollars (NZD).

How many New Zealand dollars will he get?

Show your working. [4 marks]

_____NZD

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20 The table below shows the average heights of children of different ages in a certain town.

Age (years)	Height (cm)
2	86
3	95
4	102
6	116
8	128
10	139

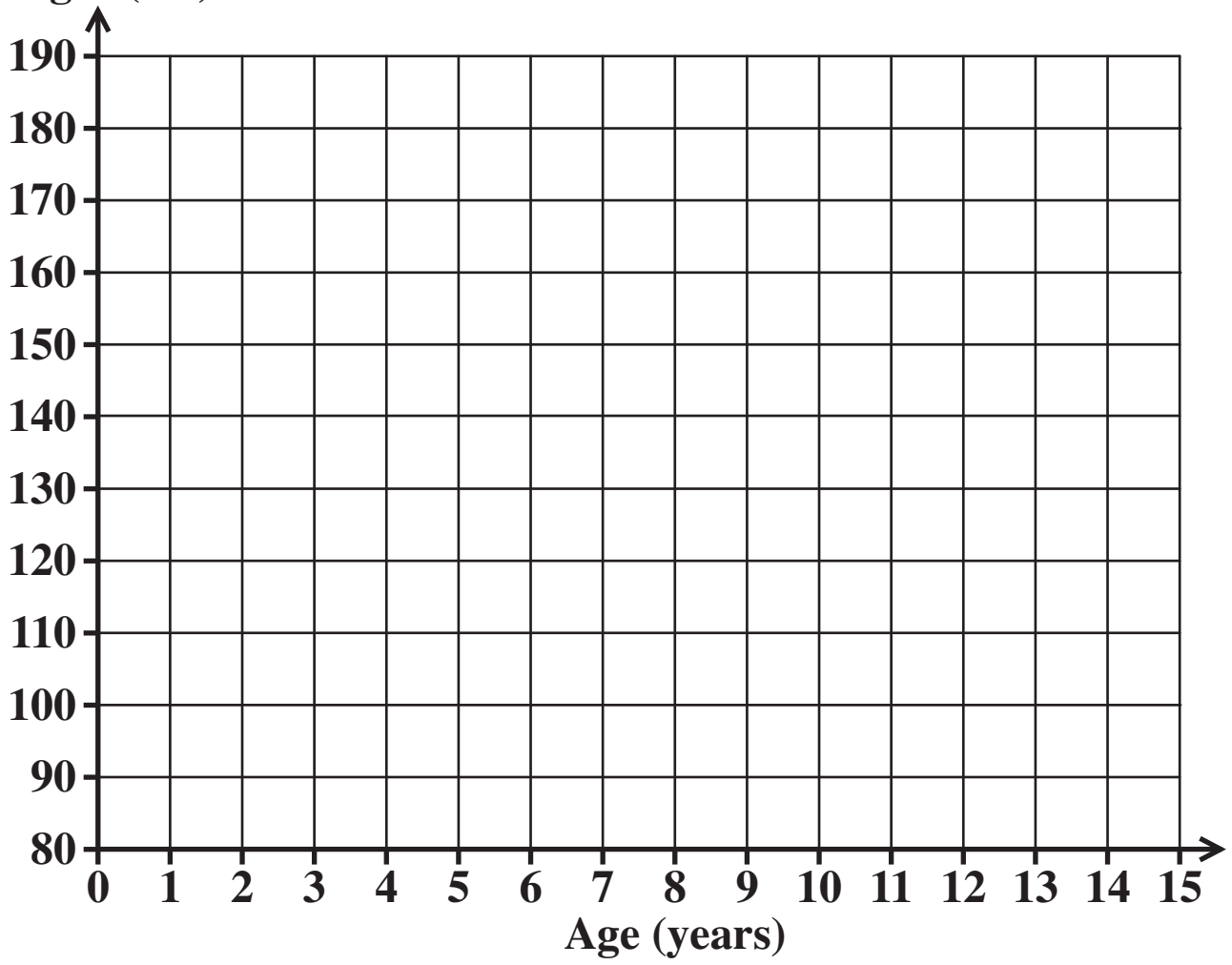
- (a)** Plot the scatter diagram for these data.
Use the grid on the opposite page. [2 marks]
- (b)** Draw a line of best fit. [1 mark]
- (c)** Use your line of best fit to estimate the average height of children from the town who are 7 years old. [1 mark]

_____ cm

- (d)** Would it be sensible to use your line of best fit to estimate the average height of children from the town who are 15 years old?
Explain your answer. [1 mark]

_____ because _____

Height (cm)



21 (a) Craig uses the formula

$$F = 2C + 30$$

to convert a temperature in degrees Celsius (C) to one in degrees Fahrenheit (F).

Use Craig's formula to find F when C = 75.

[1 mark]

(b) Craig's formula does not give exact conversions.

The formula which gives exact conversions is

$$F = 1.8 C + 32$$

(i) Complete the table below for

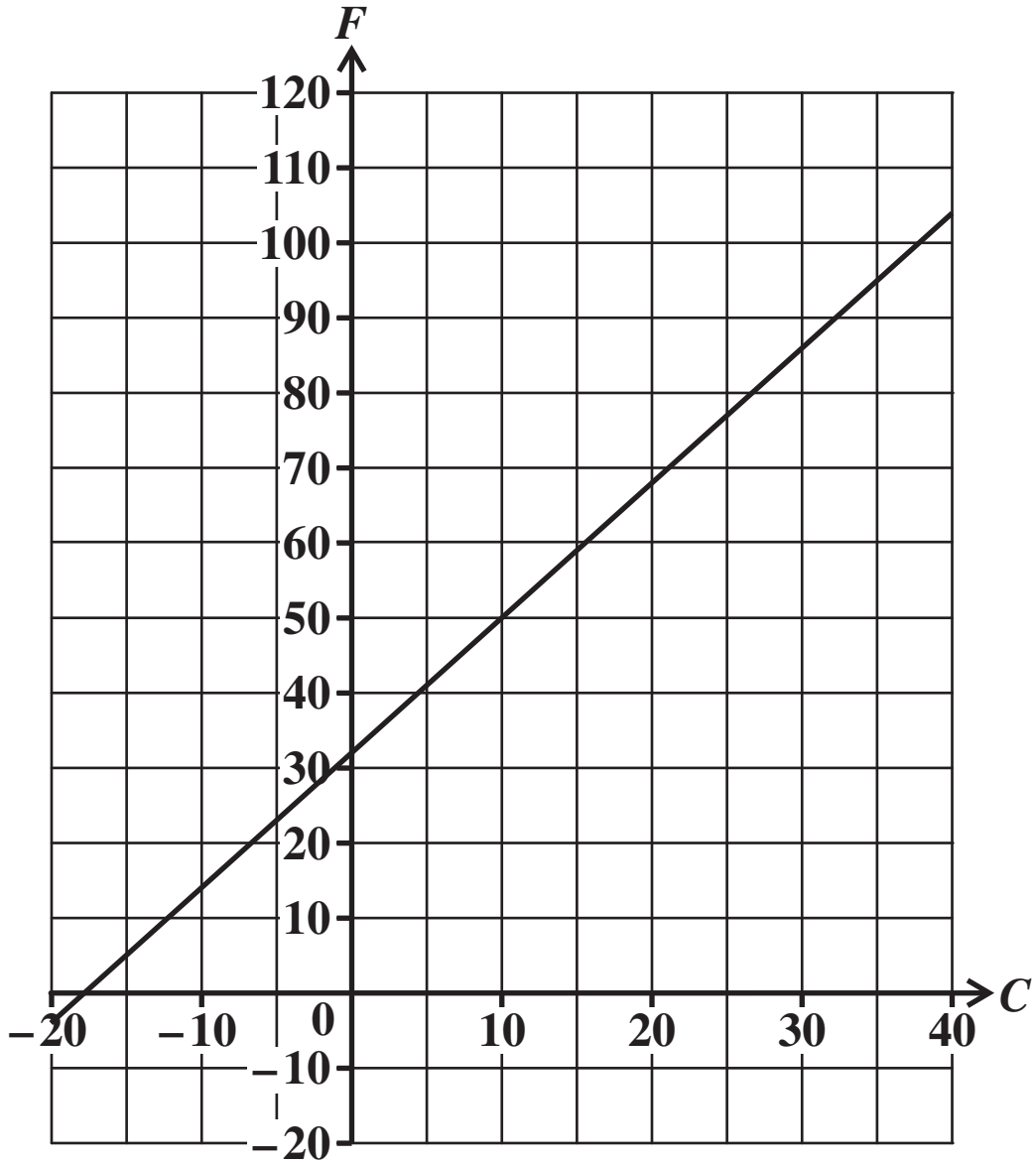
$$F = 1.8 C + 32$$

[1 mark]

C	-20	0	20	40
F			68	

The conversion graph for the exact conversion is shown on the grid opposite.

Graph of $F = 1.8C + 32$



- (ii) Complete the table and use the grid on the separate sheet to draw the graph of Craig's conversion $F = 2C + 30$
[3 marks]

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