

Write your name here

Surname

Other names

Centre Number

Candidate Number

Edexcel GCSE

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Mathematics A

Paper 2 (Calculator)

Foundation Tier

Friday 14 June 2013 – Morning

Time: 1 hour 45 minutes

Paper Reference

1MA0/2F

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator.

Tracing paper may be used.

Total Marks

Instructions

- Use black ink or ball-point pen.
- Fill in the boxes at the top of this page with your name, centre number and candidate number.
- Answer all questions.
- Answer the questions in the spaces provided – there may be more space than you need.
- Calculators may be used.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.



Information

- The total mark for this paper is 100
- The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.
- Questions labelled with an asterisk (*) are ones where the quality of your written communication will be assessed.

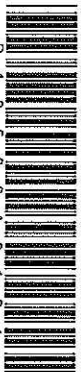
Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over >

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P 4 3 5 9 9 A 0 1 2 4

PEARSON

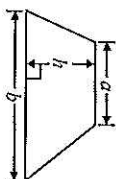
GCSE Mathematics 1MA0

Formulae: Foundation Tier

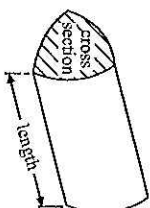
You must not write on this formulae page.

Anything you write on this formulae page will gain NO credit.

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



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



P 4 3 5 9 9 A 0 2 2 4

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 (a) Write the number two thousand and eighty five in figures.

2085 (1)

(b) Write the number 5108 in words.

Five thousand, one hundred and eighty. (1)

(c) Write down the value of 9 in the number 2.96

nine tenths (1)

(d) Write down 157 correct to the nearest 10

160 (1)

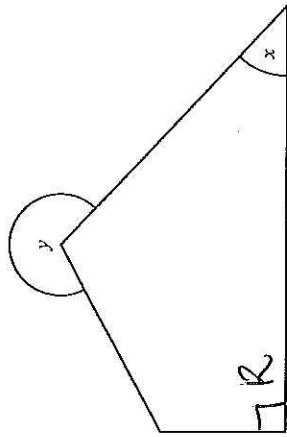
(Total for Question 1 is 4 marks)

2 Complete this table.

Write a sensible unit for each measurement.

	Metric	Imperial
The length of a pencil	centimetres	inches
The weight of a tomato	grams	ounces
The amount of milk in a bottle	litres	pints

(Total for Question 2 is 3 marks)



(a) (i) On this diagram mark, with a letter R, a right angle.

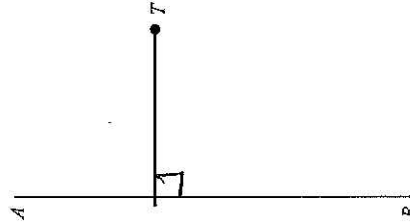
(ii) What type of angle is angle x?

acute

(iii) What type of angle is angle y?

reflex (3)

(b) AB is a straight line.



Draw a line from the point T perpendicular to the line AB.

(1)

(Total for Question 3 is 4 marks)



4 (a) Simplify $m + m + m + m + m$

$5m$
.....
(1)

(b) Simplify $2p + 7p$

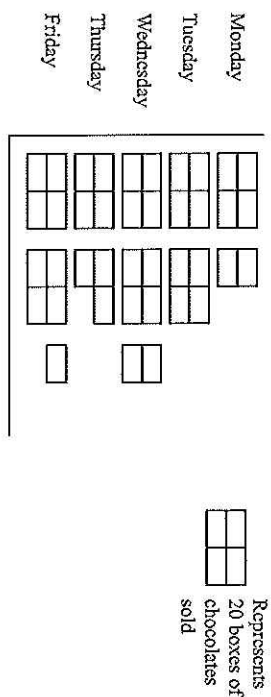
$9p$
.....
(1)

(c) Simplify $t \times w \times 4$

$4tw$
.....
(1)

(Total for Question 4 is 3 marks)

5 Here is a pictogram.
It shows the number of boxes of chocolates Mr Fern sold last week from Monday to Friday.



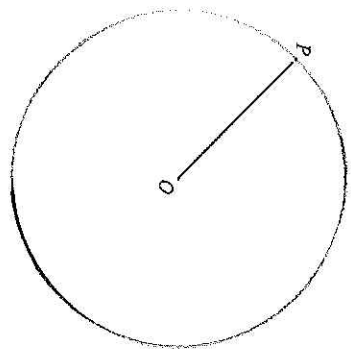
What fraction of the total number of these boxes of chocolates did Mr Fern sell on Tuesday?

$$30 + 40 + 50 + 35 + 45 = 200$$
$$\frac{40}{200} = \frac{1}{5}$$

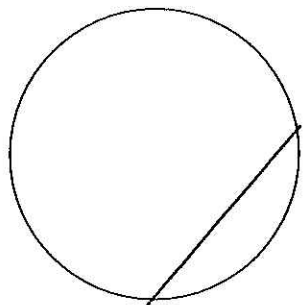
Tuesday

(Total for Question 5 is 3 marks)

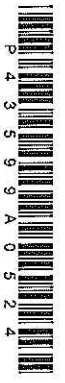
6 The line OP is a radius of a circle, centre O .
(a) Draw accurately the circle.



(b) On the circle below, draw a chord.



(Total for Question 6 is 2 marks)



P 4 3 5 9 9 A 0 5 2 4

5 Turn over



P 4 3 5 9 9 A 0 6 2 4

6

7 The diagram shows the distances, in kilometres, between some towns, by road.

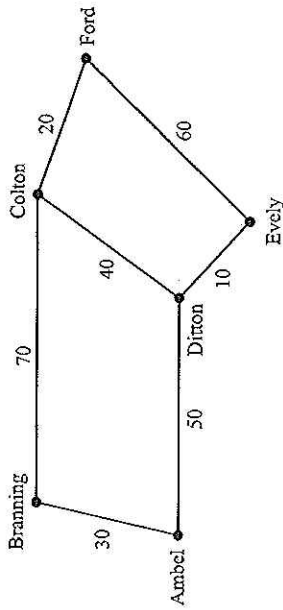


Diagram NOT accurately drawn

Work out the shortest distance between Ambel and Ford by road.

Ambel - Ditton - Colton - Ford
 $50 + 40 + 20 = 110$

..... km

(Total for Question 7 is 2 marks)

8 $a = 4b$

(a) Work out the value of a when $b = 3$

$4 \times 3 = 12$

$a = 12$
(1)

$P = 4d - 3$

(b) Work out the value of P when $d = 2$

$4 \times 2 = 8 - 3 = 5$

$P = 5$
(2)

(Total for Question 8 is 3 marks)

9 Work out the difference in value between $\frac{1}{4}$ and 30%.

$\frac{1}{4} = 25\%$
 $30\% - 25\% = 5\%$

(Total for Question 9 is 2 marks)

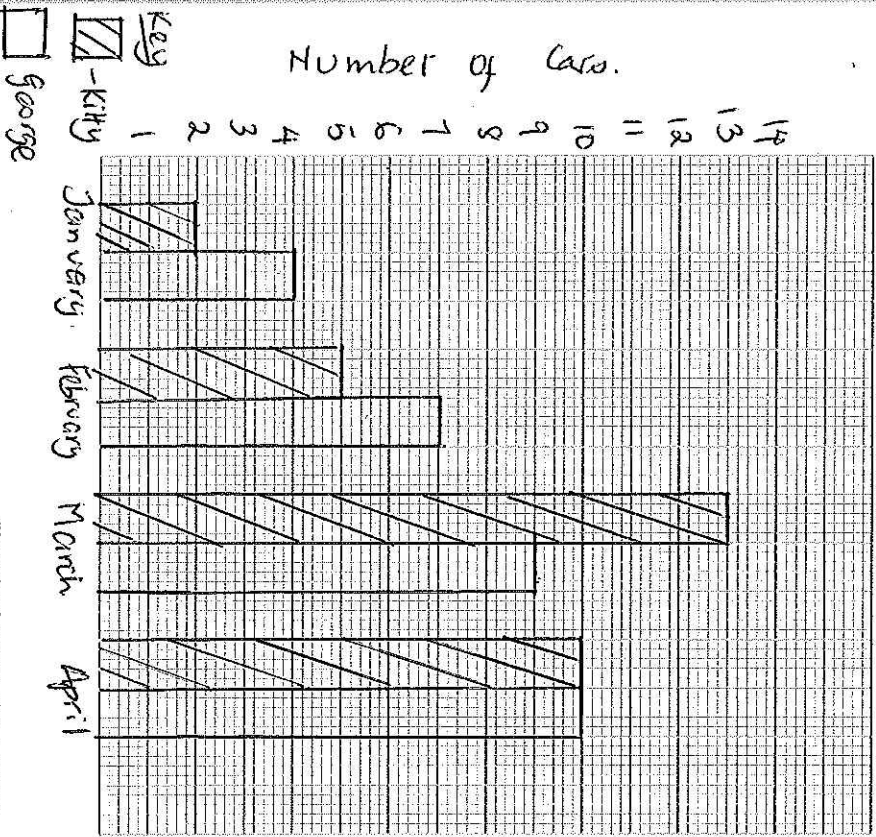


*10 Kitty and George sell cars.

The table shows the numbers of cars sold by Kitty and by George in the first four months of 2013

	January	February	March	April
Kitty	2	5	13	10
George	4	7	9	10

Show this information in a suitable diagram.



P 4 3 5 9 9 A 0 9 2 4

9 Turn over >

11 Here is a list of numbers.

11 12 13 14 15 16 17 18 19 20

From the list, write down

(a) a factor of 24

12

(1)

(b) a multiple of 7

14

(1)

(c) a square number

16

(1)

(Total for Question 11 is 3 marks)

12 Here is the number of goals a hockey team scored in each of 10 matches.

Find

(i) the median

3 4 3 3 2 5 3 5 6 2 4
2, 2, 3, 3, 3, 3, 4, 4, 5, 5, 6
3+4
2

3.5

(ii) the range

6 - 2 = 4

(iii) the mean

$$\frac{3+4+3+2+5+3+5+6+2+4}{10}$$

3.7

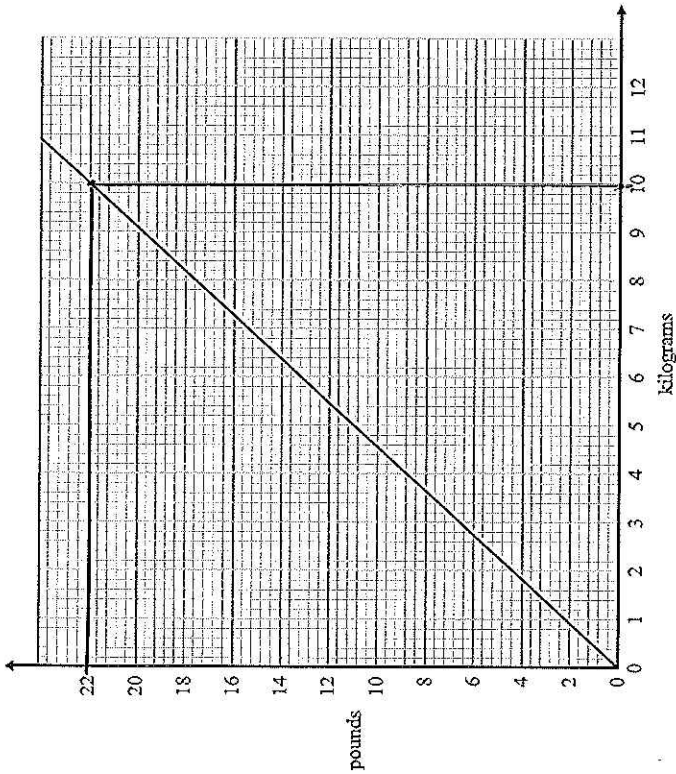
(Total for Question 12 is 6 marks)



P 4 3 5 9 9 A 0 1 0 2 4

10

13 You can use this conversion graph to change between kilograms and pounds.



Daniel's weight is 9 stone 6 pounds.
1 stone = 14 pounds.

What is Daniel's weight in kilograms?

$$\begin{aligned} \text{Daniel} &= (14 \times 9) + 6 = 132 \text{ pounds} \\ &= 9.9 \text{ kg} \times 6 \\ &= 59.4 \text{ kg} \end{aligned}$$

(Total for Question 13 is 3 marks)

*14 Angela and Michelle both work as waitresses at the same restaurant.

This formula is used to work out the total amount of money each waitress gets.

$$\text{Total amount} = \text{£}6.50 \times \text{number of hours worked} + \text{tips}$$

The table shows the number of hours Angela and Michelle each worked last Saturday. It also shows the tips they got.

	Number of hours worked	Tips
Angela	8	£12
Michelle	7	£15

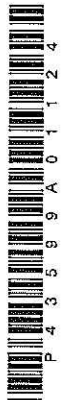
Who got the higher total amount of money last Saturday?
You must show clearly how you got your answer.

$$\begin{aligned} \text{Angela} &= (\text{£}6.50 \times 8) + \text{£}12 \\ &= \text{£}64 \end{aligned}$$

$$\begin{aligned} \text{Michelle} &= (\text{£}6.50 \times 7) + \text{£}15 \\ &= \text{£}60.50 \end{aligned}$$

Angela got the highest amount

(Total for Question 14 is 4 marks)



15 Here is a list of all the coins in Amira's purse.

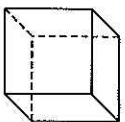
£1	5p	20p	1p
20p	1p	10p	£1
20p	10p	£1	20p
10p	20p	20p	5p

Complete the table for this information.

Coin	Tally	Frequency
£1	111	3
50p	0	0
20p		6
10p	111	3
5p	11	2
2p	0	0
1p	11	2

(Total for Question 15 is 2 marks)

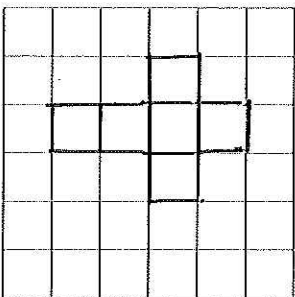
16 Here is a cube.



(a) How many vertices does a cube have?

8
(1)

(b) On the grid, draw a net of a cube.



(2)

The diagram shows a cube of side 3 cm.

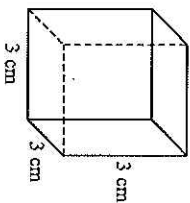


Diagram NOT accurately drawn

(c) Work out the total surface area of this cube.

$$3 \times 3 \times 6 = 54 \text{ cm}^2$$

54
(2) cm²

(Total for Question 16 is 5 marks)



P 4 3 5 9 9 A 0 1 3 2 4

13 Turn over >



P 4 3 5 9 9 A 0 1 4 2 4

14

17 Robert and his family are going on holiday to France.

A bank gives Robert this chart to help him to change between pounds (£) and euros (€).

pounds (£)	euros (€)
1	= 1.2
2	= 2.4
5	= 6.0
10	= 12.0
20	= 24.0
50	= 60.0
100	= 120.0

Robert changes £600 into euros (€).

(a) How many euros should Robert get? £600 x 1.2

€ 720.
(2)

In France, a laptop costs €540
In England, the same laptop costs £460

(b) Work out the difference between the cost of the laptop in France and the cost of the laptop in England.
You must show clearly how you got your answer.

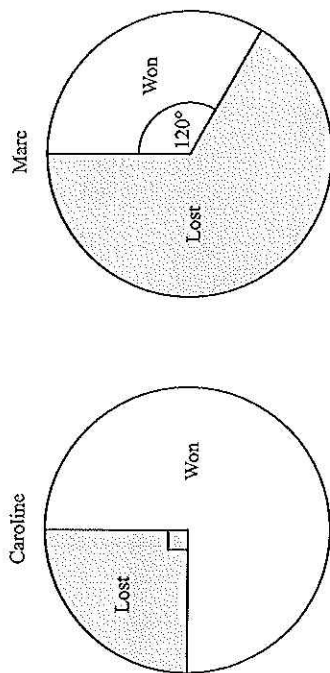
$$\begin{aligned} \text{In France. } & \frac{€540}{1.2} = £450 \\ \text{England} & = £460 \\ \text{difference} & = £460 - £450 \\ & = £10 \end{aligned}$$

(5)
(Total for Question 17 is 5 marks)

18 Caroline and Marc are in a darts team.

The pie charts show information about the number of games Caroline and Marc each won last year.

They also show information about the number of games Caroline and Marc each lost last year.



Caroline played 52 games.
Marc played 150 games.

Marc won more games than Caroline.

How many more?

$$\begin{aligned} \text{Caroline won: } & \frac{270^\circ}{360^\circ} \times 52 \\ & = \frac{3}{4} \times 52 = 39 \text{ games} \end{aligned}$$

$$\begin{aligned} \text{Marc } & \frac{120^\circ}{360^\circ} \times 150 = \frac{1}{3} \times 150 \\ & = 50 \text{ games.} \end{aligned}$$

$$\begin{aligned} \text{Marc won } & (50 - 39) \text{ more} \\ & = 11 \text{ more} \end{aligned}$$

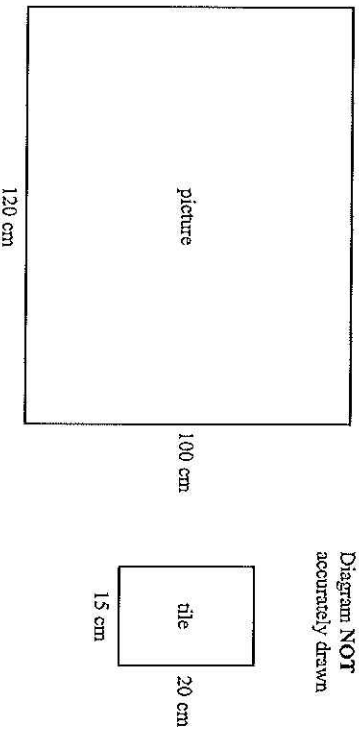
(Total for Question 18 is 3 marks)



(Total for Question 18 is 3 marks)

19 A picture is made from tiles.

The diagram shows the picture in the shape of a rectangle, 120 cm by 100 cm. It also shows a tile in the shape of a rectangle, 15 cm by 20 cm.



(a) Work out the number of these tiles needed to make the picture.

$$\frac{120 \times 100}{20 \times 15} = \frac{12000}{300} = 40$$

The total cost of the tiles is £52 plus VAT. The rate of VAT is 20%.

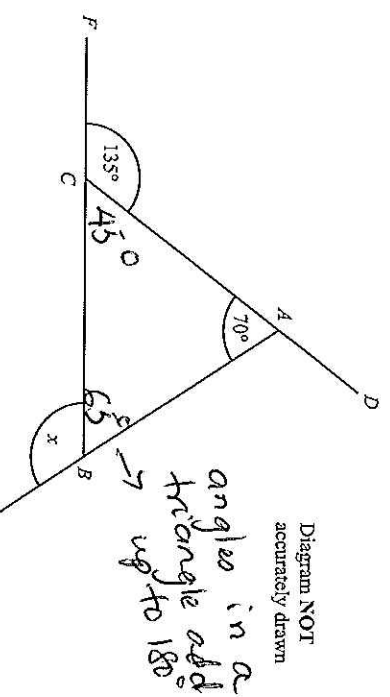
$$\begin{aligned} 10\% &= £5.20 \\ 20\% &= £10.40 \end{aligned}$$

£ 10.40

(Total for Question 19 is 5 marks)

*20

DA , FCB and ABE are straight lines. Work out the size of the angle marked x . You must give reasons for your answer.



$\angle DCB = 45^\circ$ (angle on a straight line)
 add up to 180
 $\text{Angle } x = 180^\circ - 65^\circ = 115^\circ$

(Total for Question 20 is 5 marks)



P 4 3 5 9 9 A 0 1 7 2 4

17 Turn over >



P 4 3 5 9 9 A 0 1 8 2 4

18

18 Turn over >

21 The table shows the prices of drinks at Ed's Cafe.

	Ed's Cafe		
	Small	Regular	Large
Black coffee	£1.40	£1.80	£2.20
Cappuccino	£1.60	£2.10	£2.60
Latte	£1.60	£2.10	£2.60
Tea	£1.20	£1.50	£1.80
Cola	£1.50	£2.00	£2.40

Helen buys

- 2 small black coffees
- 1 regular cappuccino
- 1 large cola

Helen pays with a £10 note.

(a) Work out how much change Helen should get.

$$\begin{aligned}
 2 \text{ black coffees} &= £2.80 \\
 1 \text{ cappuccino} &= £2.10 \\
 1 \text{ large cola} &= £2.40 \\
 \hline
 &= £7.30
 \end{aligned}$$

$$£10 - £7.30 = £2.70$$

£ 2.70 (3)

Ed reduces all the prices by 15%.

(b) Work out the reduced price of a large latte.

$$2.60 \times \frac{85}{100} =$$

£ 2.21 (3)

(Total for Question 21 is 6 marks)



P 4 3 5 9 9 A 0 1 5 2 4

*22 Here is a list of ingredients for making 18 mince pies.

Ingredients for 18 mince pies

- 225 g of butter
- 350 g of flour
- 100 g of sugar
- 280 g of mincemeat
- 1 egg

Elaine wants to make 45 mince pies.

Elaine has

- 1 kg of butter
- 1 kg of flour
- 500 g of sugar
- 600 g of mincemeat
- 6 eggs

Does Elaine have enough of each ingredient to make 45 mince pies? You must show clearly how you got your answer.

To make 45 mince pies she needs

45 mince pie	1/2 of 18
362.5 kg butter	9
875 kg flour	112.5
250 g of sugar	175
700 g of mincemeat	50
2 1/2 eggs	140
	2

NO, she does not have enough mincemeat. All the other ingredients are fine.

(Total for Question 22 is 4 marks)



P 4 3 5 9 9 A 0 2 0 2 4

23 Mason is doing a survey to find out how many magazines people buy. He uses this question on his questionnaire.

How many magazines do you buy?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 to 4	4 to 8	8 to 12

(a) Write down two things wrong with this question.

1 No time period.

2 overlapping boxes

(b) Write a better question for Mason to use on his questionnaire to find out how many magazines people buy.

How many magazines do you buy a week?

0-4 5-8 9-12 more than 12

Mason asks his friends at school to do his questionnaire. This may not be a good sample to use.

(c) Give one reason why.

All his friends will be of a similar age, so this will not be representative of the population.

(Total for Question 23 is 5 marks)

24 The equation

$$x^2 + 2x = 110$$

has a solution between 4 and 5

Use a trial and improvement method to find this solution. Give your answer correct to one decimal place. You must show ALL your working.

x	$x^2 + 2x = 110$	comment
4	$4^2 + 8 = 72$	too small
4.4	$4.4^2 + 8.8 = 82.4$	too small
4.6	$4.6^2 + 9.2 = 106.536$	too small
4.8	$4.8^2 + 9.6 = 115.2$	too big
4.7	$4.7^2 + 9.4 = 115.23$	too big
4.75	$4.75^2 + 9.5 = 115.6725$	too big
4.74	$4.74^2 + 9.48 = 115.916$	too big
4.72	$4.72^2 + 9.44 = 115.916$	too big
4.65	109.845	small
4.66	110.515	big
4.655	110.179	big
4.653	110.045	correct

$x = 4.7$ (correct to 1 decimal place)

(Total for Question 24 is 4 marks)



P 4 3 5 9 9 A 0 2 1 2 4

21 Turn over >



P 4 3 5 9 9 A 0 2 2 2 4

22

25 Colin, Dave and Emma share some money.
Colin gets $\frac{3}{10}$ of the money.

Emma and Dave share the rest of the money in the ratio 3 : 2
What is Dave's share of the money?

Emma and Dave get $\frac{7}{10}$

Dave's ratio = $\frac{2}{5}$

$$\frac{2}{5} \text{ of } \frac{7}{10} = \frac{2 \times 7}{5 \times 10} = \frac{14}{50} = \frac{7}{25}$$

$\frac{7}{25}$

(Total for Question 25 is 4 marks)

26 Solve $3(x-2) = x+7$

$$\begin{aligned} 3x - 6 &= x + 7 + 6 \\ -x + 6 &= 13 \\ 2x &= 13 \\ x &= \frac{13}{2} = 6.5 \end{aligned}$$

$x = 6.5$

(Total for Question 26 is 3 marks)

27 XYZ is a right-angled triangle.

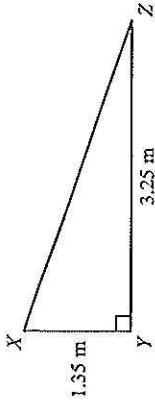


Diagram NOT accurately drawn

Calculate the length of XZ.
Give your answer correct to 3 significant figures.

Pythagoras' Theorem

$$a^2 + b^2 = c^2$$

$$1.35^2 + 3.25^2 = c^2$$

$$1.8225 + 10.5625 = c^2$$

$$12.385 = c^2$$

$$3.519207 = c$$

(3 significant figures)

(Total for Question 27 is 3 marks)

TOTAL FOR PAPER IS 100 MARKS