Paper Reference(s)

1380/2F

Edexcel GCSE

Mathematics (Linear) – 1380
Paper 2 (Calculator)

Foundation Tier

Monday 5 March 2012 – Afternoon

Time: 1 hour 30 minutes

Materials required for examination
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Items included with question papers
Nil

Instructions to Candidates
In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
You must NOT write on the formulae page.
Anything you write on the formulae page will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates
The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 25 questions in this question paper. The total mark for this paper is 100.
There are 20 pages in this question paper. Any blank pages are indicated.
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.

Advice to Candidates
Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.
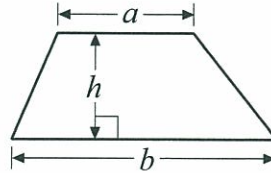
Turn over

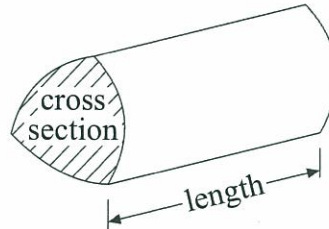**PEARSON**

GCSE Mathematics (Linear) 1380

Formulae: Foundation Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

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

Volume of prism = area of cross section × length

Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. (a) Write the number 5076 in words.

    Five thousand and seventy six

    (1)

   (b) Write the number **twelve thousand, five hundred and seven** in figures.

    12,507

    (1)

   (c) Write the number 72 879 to the nearest thousand.

    73,000

    (1)

   (d) Write down the value of the 7 in the number 5709
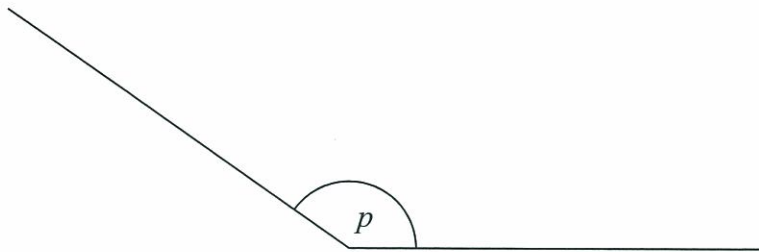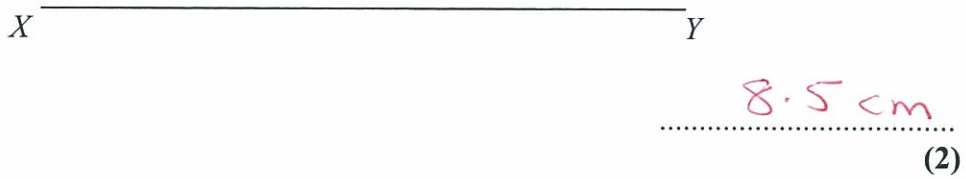
    700

    (1) Q1

    (Total 4 marks)

2. (a) Measure the length of the line *XY*.

X ——————————————————— Y

_8.5 cm_

(2)

(b) What type of angle is angle *p*?

Obtuse

(1)

(c) Measure the size of angle *p*.

_145_ °

(1) Q2

(Total 4 marks)

3. Complete this table.
Write a sensible unit for each measurement.

	Metric	**Imperial**
The weight of a bicycle	Kilograms	pounds
The volume of water in a watering can	Litres	pints
The length of this page	centimetres	inches

Q3

(Total 3 marks)

P 4 0 6 3 1 A 0 4 2 0

4. Tom wrote down the colour of all the cars going past his house in 10 minutes.
Here are his results.

red	blue	grey	red	grey
white	white	red	blue	white
red	red	grey	grey	red
blue	blue	red	white	blue

(a) Complete the frequency table for his results.

Colour	Tally	Frequency
red	HHL I I	7
blue	THL	5
white	I I I I	4
grey	I I I I	4

(2)

(b) On the grid, draw a bar chart to show this information.
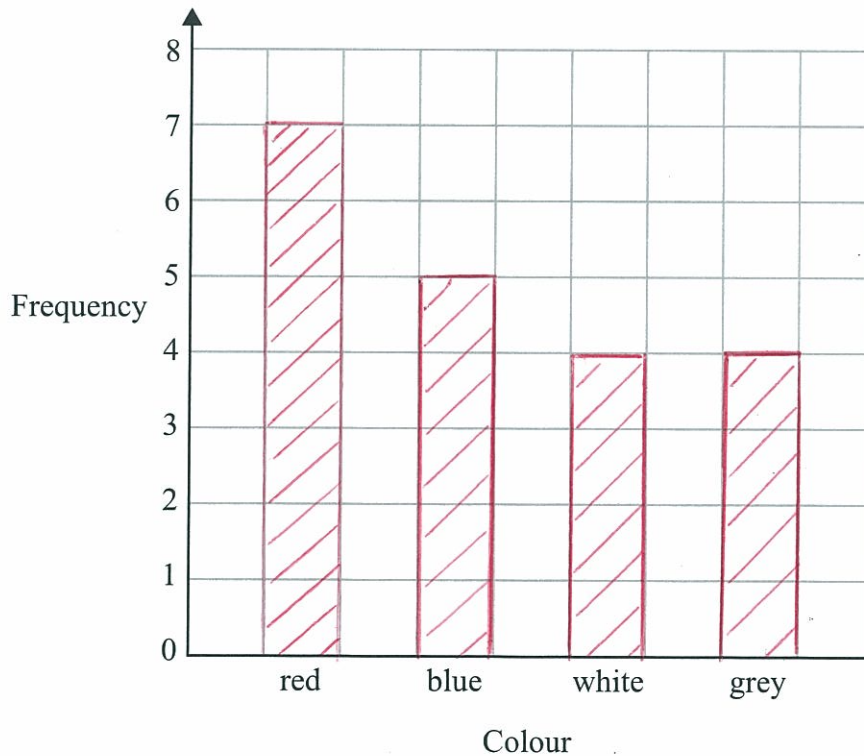
(2)

(c) Which colour is the mode?
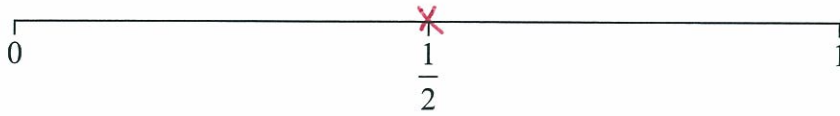
Red
....

(1)   **Q4**

(Total 5 marks)

5. (a) Simon throws a fair coin.

On the probability scale, mark with a cross (×), the probability that the coin will land on tails.

$$0 \qquad \overset{\times}{\dfrac{1}{2}} \qquad 1$$

(1)

(b) Suresh throws an ordinary 6-sided dice.

On the probability scale, mark with a cross (×), the probability that she will throw a 7

$$\overset{\times}{0} \qquad \dfrac{1}{2} \qquad 1$$
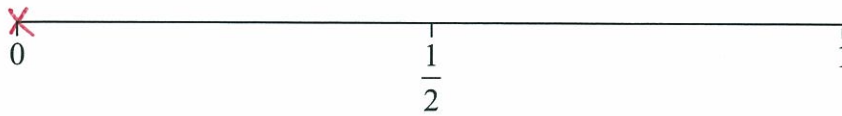
(1)

(c) There are three yellow sweets and one blue sweet in a bag.
Gulam takes at random a sweet from the bag.

On the probability scale, mark with a cross (×), the probability that he will take a blue sweet.

$$0 \qquad \overset{\times}{} \qquad \dfrac{1}{2} \qquad 1$$
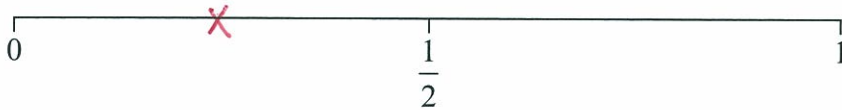
(1)   Q5

(Total 3 marks)

6. Nathan thinks of a number.
He doubles the number.
He adds 5

His answer is 17

What number does Nathan think of?

$2x + 5 = 17$

$\Rightarrow x = \dfrac{17 - 5}{2} = \dfrac{12}{2} = 6$

6

Q6

(Total 3 marks)

6

7. Here is a coordinate grid.
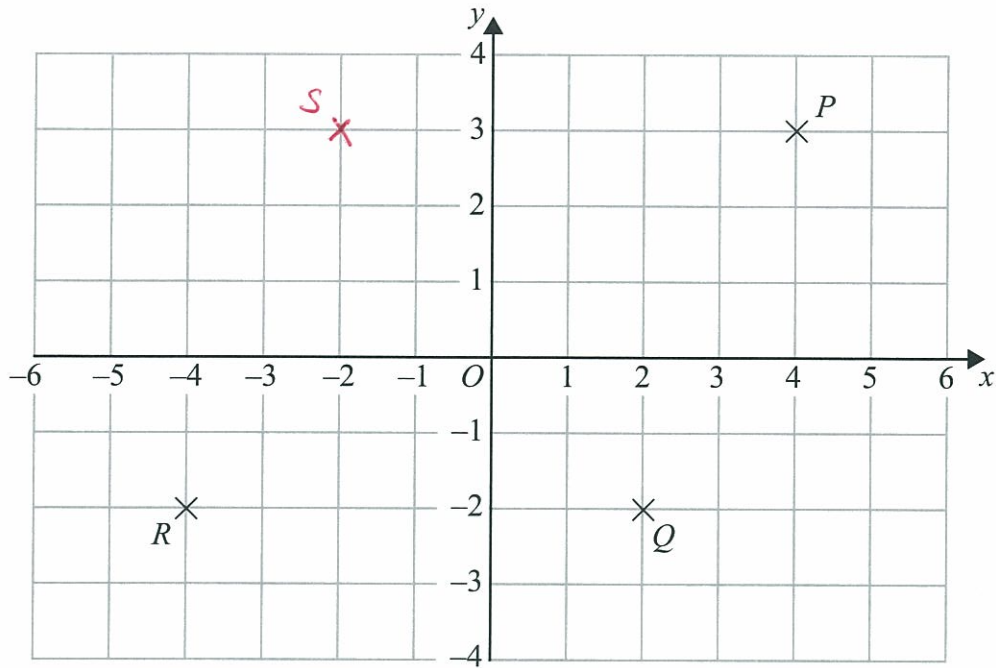
(a) Write down the coordinates of the point

(i) *P*

(......4...... , ...3......)

(ii) *R*

(......−4...... , ...−2......)

(2)

PQRS is a parallelogram.

(b) On the grid, mark with a cross (×) the fourth corner, *S*, of the parallelogram.
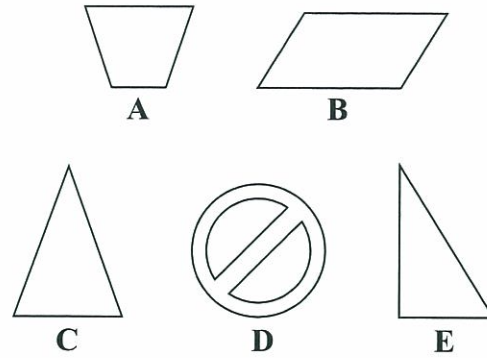
(2)

Q7

(Total 4 marks)

8. Here are five shapes.

A   B

C   D   E

Two of these shapes have only **one** line of symmetry.

(a) Write down the letter of each of these **two** shapes.

.... A .... and .... C ....

(2)

Two of these shapes have rotational symmetry of order 2

(b) Write down the letter of each of these **two** shapes.

.... B .... and .... D ....

(2) **Q8**

(Total 4 marks)

9. Sherri says

"If you multiply an odd number by 7 and take away 2 you always get a prime number".

Show that Sherri is wrong.

Let $7x - 2$ represent the number we obtain when we multiply an odd no. x by 7 and then take away 2. If Sherri is correct, then $7x - 2$ should be prime for all odd numbers x. But when $x = 5$, $7x - 2 = 7(5) - 2 = 33$ and 33 is <u>not</u> prime since it has factors 3 and 11. ∴ Sherri is wrong.

Q9

(Total 2 marks)

10. (a) Simplify $a + a + a + a$

$4a$

(1)

(b) Simplify $3a + 5b - a + 2b$

$2a + 7b$

(2)

(c) Solve $3x = 12$

$x = \dfrac{12}{3} = 4$

$x =$ 4

(1)

(d) Solve $y - 7 = 5$

$y = 5 + 7 = 12$

$y =$ 12

(1)

(e) Solve $2t + 8 = 3$

$t = \dfrac{3-8}{2} = \dfrac{-5}{2} = -2\frac{1}{2}$ or -2.5

$t =$ -2.5

(2) Q10

(Total 7 marks)

11. Here are the first seven terms in a number sequence.

3   6   5   8   7   10   9

(a) Write down the next **two** terms in this number sequence.

12   ,   11

(2)

Here are the first five terms in a different number sequence.

5   9   13   17   21

(b) Find the 10th term in this number sequence.

$21 + 5(4) = 21 + 20 = 41$

41

(2)

(c) Write an expression, in terms of n, for the nth term of this number sequence.

| 1 | 2 | 3 | 4 | 5 |
| 5 | 9 | 13 | 17 | 21 |

$\rightarrow 4n + 1$

$4n + 1$

(2) Q11

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(Total 6 marks)

Turn over

12. Mel buys

       2 pens costing 55p each
       4 pencils costing 28p each
       a calculator costing £4.95

Mel pays with a £10 note.

Work out how much change she should get.

$$10 - 2(0.55) - 4(0.28) - 4.95$$
$$= 10 - 1.1 - 1.12 - 4.95$$
$$= £2.83$$

£ __2.83__   **Q12**

(Total 4 marks)

---

13. $P = 2l + 2w$

  (a) Work out the value of P when $l = 6$ and $w = 4$

$$P = 2(6) + 2(4)$$
$$= 12 + 8 = 20$$

$P =$ __20__

(2)

  (b) Work out the value of l when $P = 24$ and $w = 3$

If $P = 2l + 2w$, then $l = \dfrac{P - 2w}{2}$

$\Rightarrow l = \dfrac{24 - 2(3)}{2} = \dfrac{24 - 6}{2} = \dfrac{18}{2} = 9$

$l =$ __9__

(2)   **Q13**

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(Total 4 marks)

P 4 0 6 3 1 A 0 1 0 2 0

14. The map shows the temperatures in some cities one night last winter.

Aberdeen –9 °C

Dublin –5 °C

London 7 °C

Cardiff –4 °C
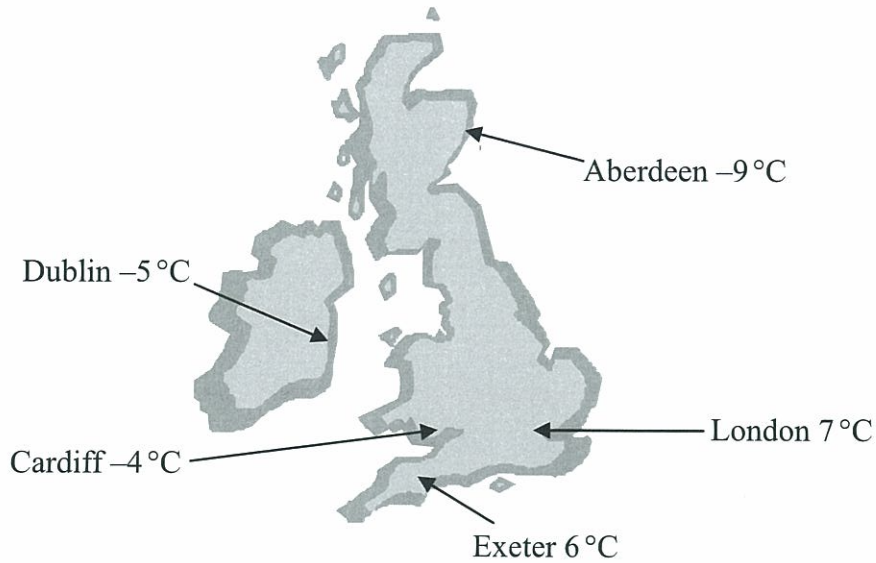
Exeter 6 °C

(a) Write down the name of the city with the highest temperature.

London

(1)

(b) Write down the name of the city with the lowest temperature.

Aberdeen

(1)

(c) Work out the difference in temperature between Cardiff and Exeter.

$6 - (-4) = 6 + 4 = 10°c$

10 °C

(1)

(d) Two cities have a difference in temperature of 4 °C.
Write down the names of these cities.

Temp in Dublin – temp in Aberdeen

$= -5 - (-9) = -5 + 9 = 4°c$

Dublin and Aberdeen

(1)

Q14

(Total 4 marks)

15. A rugby team played six games.

Here is the number of points they scored in each game.

<div align="center">24   8   18   6   12   19</div>

(a) Work out the median score for these six games.

Median of an even-sized set $= \dfrac{\text{Sum of the two middle no.s}}{2}$

6   8   ⑫   ⑱   19   24

$\therefore$ Median $= \dfrac{12+18}{2} = \dfrac{30}{2} = 15$

.... 15

(2)

(b) Work out the mean score for these six games.

Mean score $= \dfrac{6+8+12+18+19+24}{6}$

$= \dfrac{87}{6} = 14.5$

.... 14.5

(2)

The rugby team played one more game.
The mean score for all seven games is 16

(c) Work out the number of points the team scored in the seventh game.

New mean $= \dfrac{87+x}{7} = 16$ where x is the no.

of points scored in the seventh game.

$\Rightarrow x = 16(7) - 87 = 25$

.... 25 points
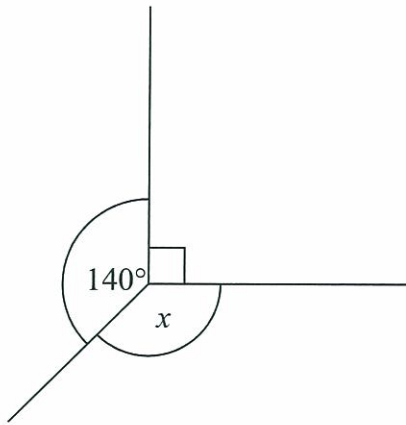
(2)

Q15

(Total 6 marks)

16.

Diagram **NOT** accurately drawn

140° x

(i) Work out the size of the angle marked x.

$x = 360 - (140 + 90)$

$= 360 - 230 = 130°$

..........130.......... °

(ii) Give a reason for your answer.

Angles making up a complete revolution
around a point add to 360°

Q16

(Total 3 marks)

17. Minnie invested £250 for 3 years at 4% simple interest.

Work out the total interest Minnie gets.

$3\left(\frac{4}{100} \times 250\right) = 3\left(\frac{1}{25} \times 250\right) = 3(10) = £30$

£ ....30.......... **Q17**

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(Total 3 marks)

18. Rosie and Jim are going on holiday to the USA.

Jim changes £350 into dollars ($).

The exchange rate is £1 = $1.34

(a) Work out how many dollars ($) Jim gets.

350 × 1·34 = $469

$ ....469........

(2)

In the USA Rosie sees some jeans costing $67

In London the same make of jeans costs £47.50

The exchange rate is still £1 = $1.34

$67

£47.50

(b) Work out the difference between the cost of the jeans in the USA and in London. Give your answer in pounds (£).

67 ÷ 1·34 = £50

∴ Difference between costs is given by
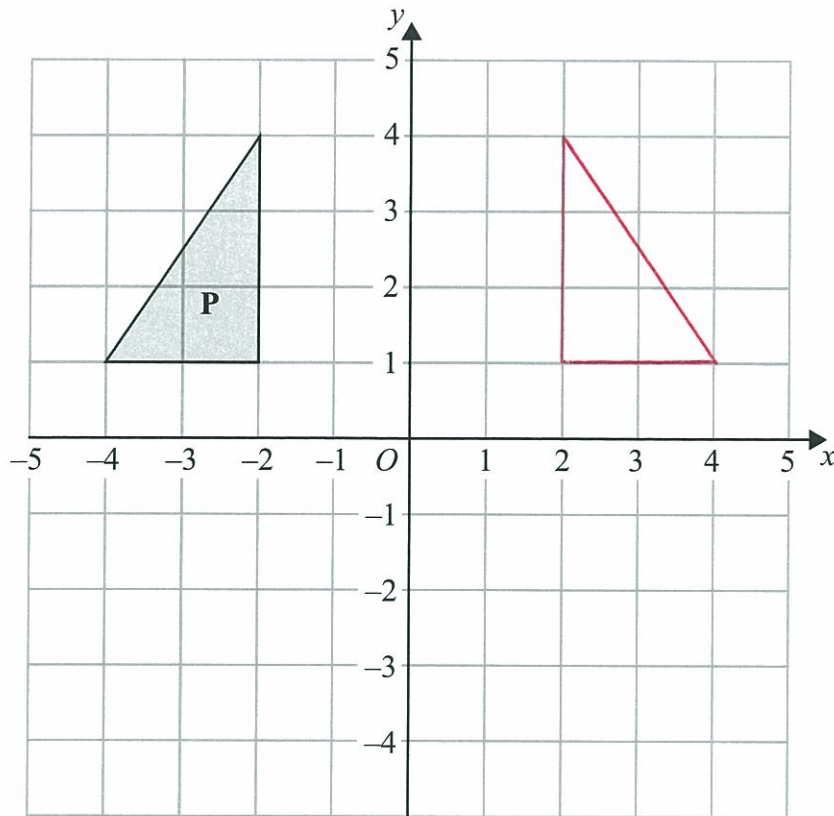
50 − 47·50 = £2·50

£ ....2·50........

(3)

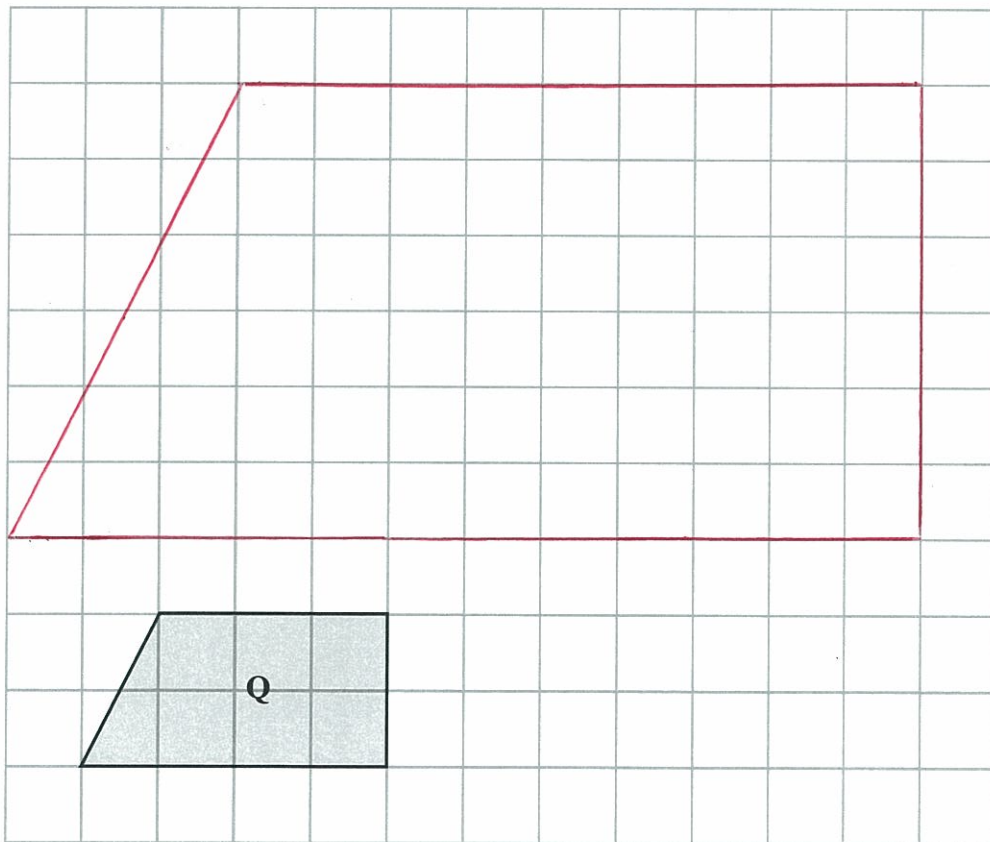Lots more free papers and model answers at www.bland.in

Q18

(Total 5 marks)

19.

(a) Reflect triangle **P** in the *y*-axis.

(2)

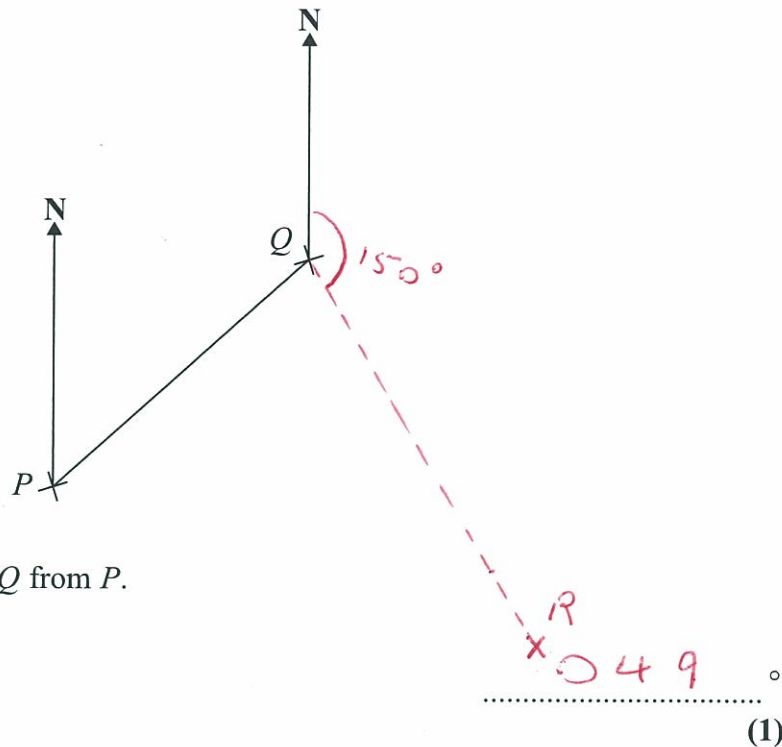(b) Draw an enlargement of shape **Q** scale factor 3

(2)

(Total 4 marks)

Q19

20. The diagram shows the position of two ports P and Q on a map.

N

N

Q $)$ 150°

P

(a) Measure the bearing of Q from P.

R

×$\supset$ 4 9 °

....
(1)

A rock R is on a bearing of 150° from Q.
On the map R is 6 cm from Q.

(b) Mark the position of R with a cross (×) and label it R.

(2)   Q20

(Total 3 marks)

21. (a) Use your calculator to work out $\dfrac{\sqrt{2.5^2 + 3.75}}{3.9 - 1.7}$

Write down all the figures on your calculator display.
You must give your answer as a decimal.

1.437398936
....
(3)

(b) Write your answer to part (a) correct to 2 decimal places.

1.44
....
(1)   Q21

(Total 4 marks)

P 4 0 6 3 1 A 0 1 6 2 0

22. The equation $x^3 + 3x = 41$

has a solution between 3 and 4

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	$x^3 + 3x$	
3.5	53.375	> 41
3.2	42.368	> 41
3.1	39.091	< 41
3.15	40.705875	< 41

$\Rightarrow 3.15 < x < 3.2$

Since x is closer to 3.2 than to 3.1,
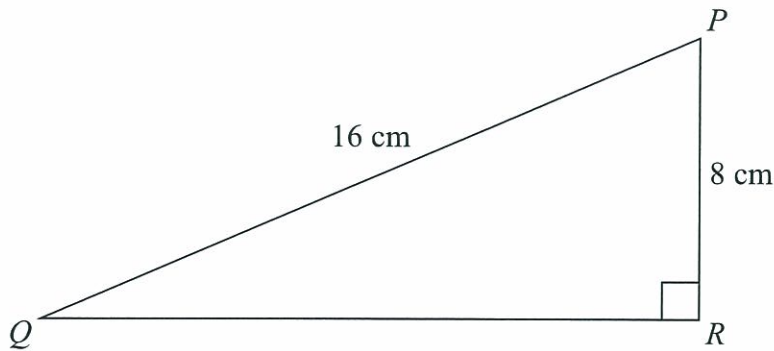$x = 3.2$ (correct to 1 d.p.).

$x = \underline{\quad 3.2 \quad}$

Q22

(Total 4 marks)

23.

Diagram **NOT** accurately drawn

P

16 cm

8 cm

Q

R

PQR is a right-angled triangle.
PQ = 16 cm.
PR = 8 cm.

Calculate the length of *QR*.
Give your answer correct to 2 decimal places.

$QR^2 + 8^2 = 16^2$ (Pythagoras' Theorem)

$\Rightarrow QR^2 = 16^2 - 8^2$

$\therefore QR = \sqrt{16^2 - 8^2} = \sqrt{192}$

$\qquad = 13.86\,cm\,(2d.p.)$.

..................**13.86**.................. cm   **Q23**

(Total 3 marks)

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P 4 0 6 3 1 A 0 1 8 2 0

24. Riki has a packet of flower seeds.

The table shows each of the probabilities that a seed taken at random will grow into a flower that is pink or red or blue or yellow.

Colour	pink	red	blue	yellow	white
Probability	0.15	0.25	0.20	0.16	

(a) Work out the probability that a seed taken at random will grow into a white flower.

$1 - (0.15 + 0.25 + 0.2 + 0.16)$

$= 1 - 0.76 = 0.24$

0.24
....
(2)

There are 300 seeds in the packet.

All of the seeds grow into flowers.

(b) Work out an estimate for the number of red flowers.

$P(R) \times 300$

$= 0.25 \times 300$

$= 75$

75
....
(2)

Q24

(Total 4 marks)

25. Caleb measured the heights of 30 plants.

The table gives some information about the heights, h cm, of the plants.

Height (h cm) of plants	Frequency	Height interval mid-point, m	m × f
$0 < h \leqslant 10$	2	5	10
$10 < h \leqslant 20$	8	15	120
$20 < h \leqslant 30$	9	25	225
$30 < h \leqslant 40$	7	35	245
$40 < h \leqslant 50$	4	45	180

$\Sigma mf = 780$

Work out an estimate for the mean height of a plant.

Estimate for mean height is given by $\dfrac{\Sigma mf}{\Sigma f}$

$= \dfrac{780}{30} = 26$ cm

.............26............ cm

Q25

(Total 4 marks)

TOTAL FOR PAPER: 100 MARKS

END

P 4 0 6 3 1 A 0 2 0 2 0