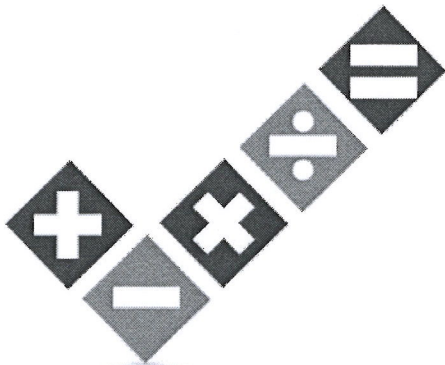| Candidate surname | Other names |
| --- | --- |
|  |  |

**BennettMaths**
Engaging Learners

# Best Guess Paper –
# 2F
# Calculator

Within this booklet you will find my best guess at what might be on the next edexcel gcse maths paper.

There may be other topics that appear on paper 2, so please ensure that you continue to revise all topics.

The paper consists of 26 questions totalling 80 marks.

1    Convert 3.2m into cm

$\times 100$

320

(Total for Question 1 is 1 mark)

2    Write down two factors of 15

3, 5

(Total for Question 2 is 1 mark)

3    Write these numbers in order of size..
Start with the smallest number.

1      -4      0      -2      7

$-4, -2, 0, 1, 7$

(Total for Question 3 is 1 mark)

4    Simplify
    $6a + a - 4a$

3a

(Total for Question 4 is 1 mark)

5    Work out 20% of 180

36

(Total for Question 5 is 1 mark)

6    Simplify
    $3x \times 4y$

12xy

(Total for Question 6 is 1 mark)

7      The pictogram shows the number of pizza eaten by three cousins during a year.

|        | 4      8      12 |
|--------|------------------|
| **Leo**    | ⊕  ⊕  ⊕          |
| **Margot** | ⊕  ⊖             |
| **Oscar**  | ⊕  ⊕             |

Key:

⊕ = 4 pizzas

The three cousins ate a total of 26 pizzas over the year.
(a) Complete the pictogram to show this information

$12 + 6 = 18$
$26 - 18 = 8$

(2)

The average cost of each pizza was £6.
(b) Work out the total cost of the 26 pizzas.

$26 \times 6 = £156$

(2)

(Total for Question 7 is 4 marks)

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8    *AC* and *BD* are two straight lines.

B

2*x*º    64º

A              B              C
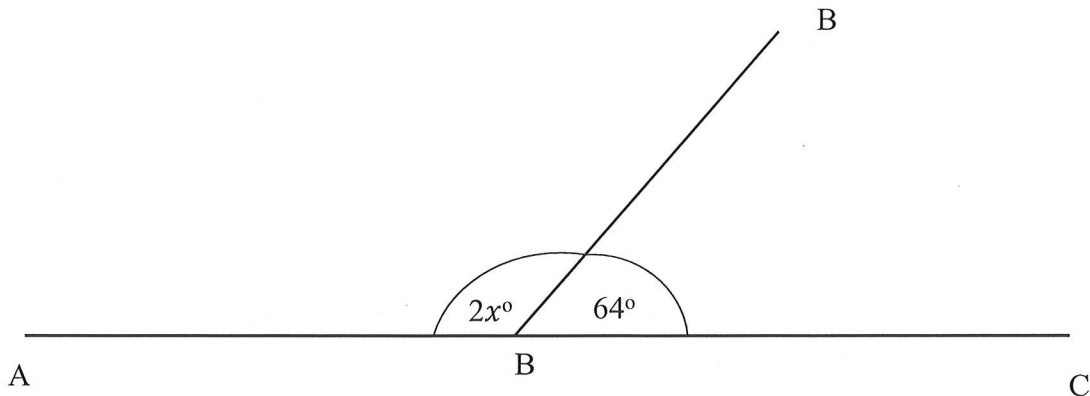
(i)    Work out the value of *x*

$$2x + 64 = 180$$
$$2x = 116$$
$$x = 58$$

(2)

(ii)    Give a reason for your answer.

Angles that meet on a straight line sum to 180°

(1)

(Total for Question 8 is 3 marks)

9
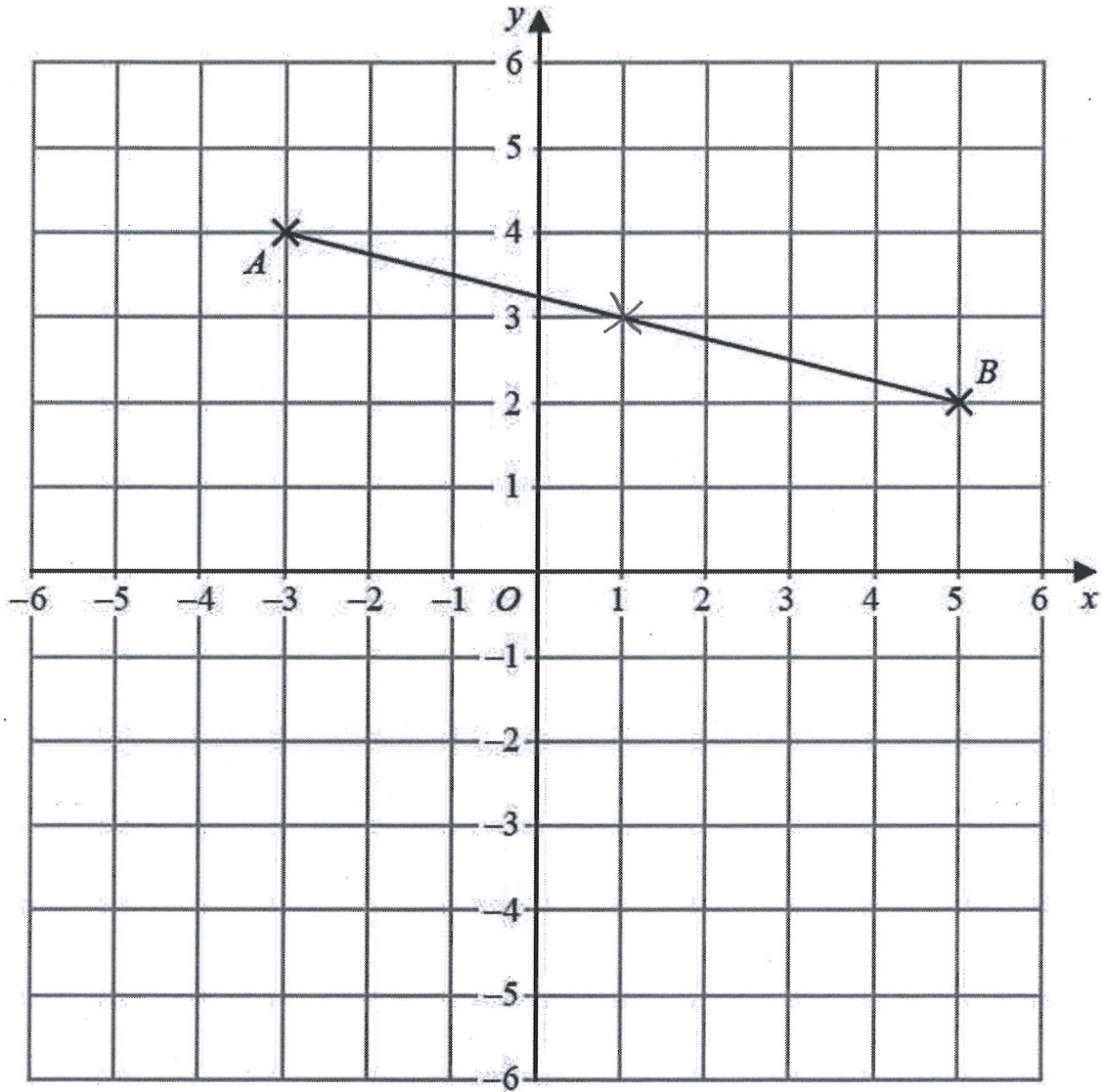


9(a)    Write down the coordinates of point A

(−3, 4)

(1)

9(b)    Write down the coordinates of the midpoint of line *AB*

(1, 3)

(1)

(Total for Question 9 is 2 marks)

10(a)  Expand  $3(2x - 4)$

$6x - 12$

(1)

10(b)  Factorise fully  $12x + 40y$

$4(3x + 10y)$

(1)

10(c)  Simplify  $(a^3)^5$

$a^{15}$

(1)

10(d)  Solve  $5(x + 8) = -11x$

$$5x + 40 = -11x$$
$$-5x \qquad -5x$$
$$40 = -16x$$
$$\div -16 \qquad \div -16$$
$$-2.5 = x$$

(3)

(Total for Question 10 is 6 marks)

11      There are red, blue and green counters in a bag.
        The probability of selecting each colour counter is below.

| Red | Blue | Green |
|-----|------|-------|
| 0.4 | 0.25 | 0.35  |

Write down the fraction of the counters that are Blue.
Give your answer in its simplest form.

$$\frac{0.25}{1} = \frac{25}{100} = \frac{1}{4}$$

(Total for Question 11 is 2 marks)

12      The recipe for 12 cookies is given below

**12 Cookies**

1000g
1kg of flour            +       500g

800g of butter          +       400g

500g of sugar           +       250g

6 cookies

Amy is going to make 18 cookies.
Work out how much of each ingredient is required.
Give your answers in grams.

flour  1500  g

butter  1200  g

sugar  750  g

(Total for Question 12 is 3 marks)

13    Heidi jogs for 100 minutes at an average speed of 9 mph.

(a) Work out the distance that Heidi travels

$$9 \text{ miles} = 1 \text{ hour (60 mins)}$$
$$3 \text{ miles} = 20 \text{ mins}$$
$$15 \text{ miles} = 100 \text{ mins}$$

(2)

Katie jogs at an average speed of 8mph and travels 20 miles.

(b) Work out the time taken for Katie to complete her walk.
    Give your answer in hours and minutes

$$\times 2.5 \begin{matrix} 8 \text{ miles} = 1 \text{ hour} \\ 20 \text{ miles} = 2.5 \text{ hours} \end{matrix} \times 2.5$$

2 hours   30 minutes

(2)

(Total for Question 13 is 4 marks)

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14     360 students have some homework.
      150 of the students were boys.
      12 of the 49 students that did not do their homework were girls.

(a) Use this information to complete the frequency tree.

did do homework   113

boys   150

360

did not do homework   37

did do homework   198

girls   210

did not do homework   12
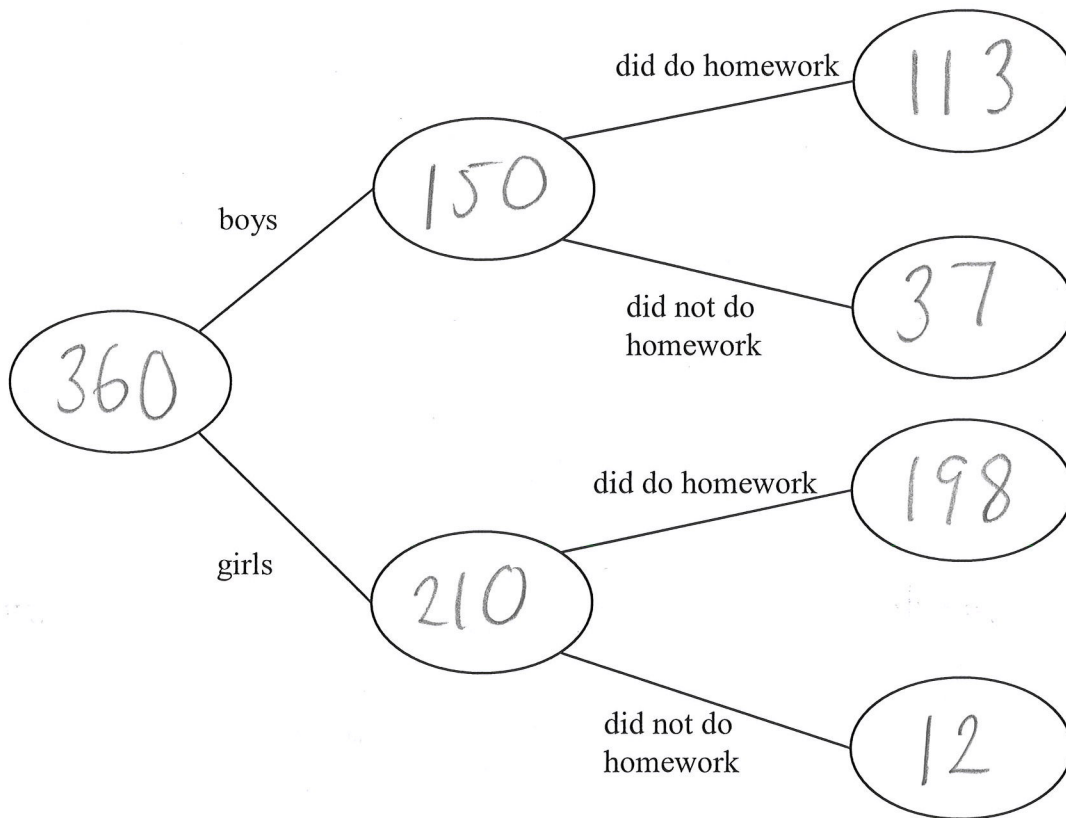
(3)

14(b)   One of the girls is chosen at random.
       Write down the probability that they did do their homework

$$\frac{198}{210}$$

(2)

(Total for Question 14 is 5 marks)

15    Using a calculator, work out the value of

$$\sqrt[3]{\frac{4.3 \times \sin(45)}{9.3^2}}$$

(a) Write down all of the numbers on your calculator display

0·3275889069

(2)

(b) Round your answer to part (a) to 3 significant figures

0·328

(1)
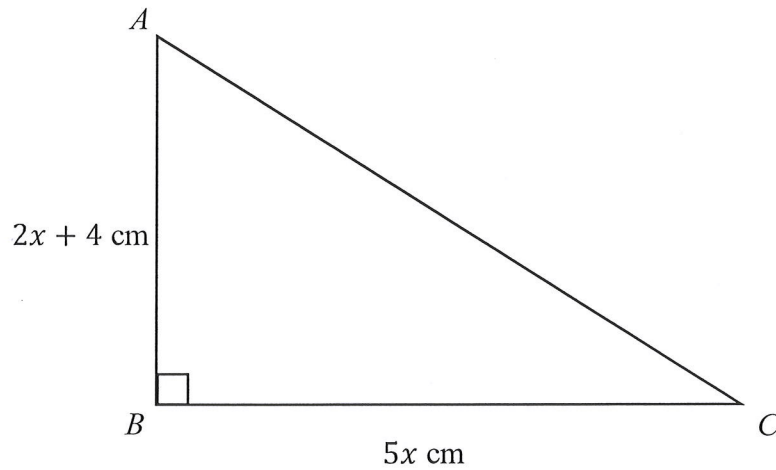
(Total for Question 15 is 3 marks)

16    $ABC$ is a right-angled triangle.
      $AB = 2x + 4$ cm
      $BC = 5x$ cm



(a)   Work out the area of the triangle.
      Giving your answer in the form $ax^2 + bx$ cm². Where $a$ and $b$ are integers

$$\frac{5x(2x+4)}{2} = \frac{10x^2 + 20x}{2} = 5x^2 + 10x$$

_____ cm²

                                                                    (3)

(b)   The area of another shape is $4x^2 + 6x$.
      If the value of $x$ is 3.
      Work out the value of the area of this shape.

$$4(3)^2 + 6(3)$$
$$36 + 18 = 54$$

_____

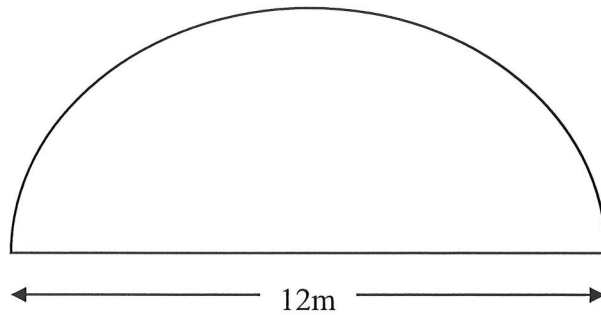                                                                    (2)

                                        (Total for Question 16 is 5 marks)

17    Mr Scott's garden is in the shape of a semi-circle.
      The diameter of the semi-circle is 12 metres.



12m

He is going to cover 46% of the garden with flowers.

The remainder of the garden will be covered with grass seeds

A box of grass seeds covers 4m² and costs £5.99

Work out the total cost of the grass seeds to cover the remainder of his garden.

$$\frac{\pi \times 6^2}{2} = 18\pi$$

$100\% - 46\% = 54\%$

$54\%$ of $18\pi = 30.536$

$30.536 \div 4 = 7.63$ (8 boxes needed)

$8 \times £5.99 = £47.92$

£ ................................................

(Total for Question 17 is 5 marks)

18(a)  Convert $3.45 \times 10^4$ into an ordinary number

$34500$

(1)

18(b)  Convert 0.00672 into standard form

$6.72 \times 10^{-3}$

(1)

18(c)  Work out the value of

$$\frac{(1.3 \times 10^4) + (6.6 \times 10^3)}{(2.45 \times 10^2)}$$
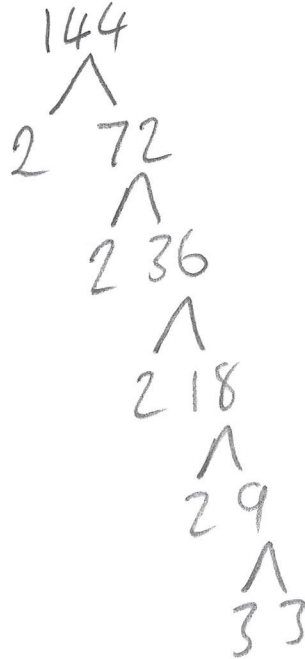
Giving your answer in standard form

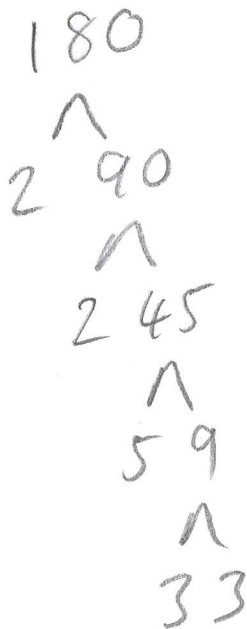$80 = 8 \times 10^1$

(2)

(Total for Question 18 is 4 marks)

19(a)   Express 144 as a product of prime factors

144
$\wedge$
2  72
$\wedge$
2  36
$\wedge$
2  18
$\wedge$
2  9
$\wedge$
3  3

$2^4 \times 3^2$

(2)

19(b)   Find the highest common factor of 144 and 180

180
$\wedge$
2  90
$\wedge$
2  45
$\wedge$
5  9
$\wedge$
3  3

$2^2 \times 3^2 \times 5$

144  180
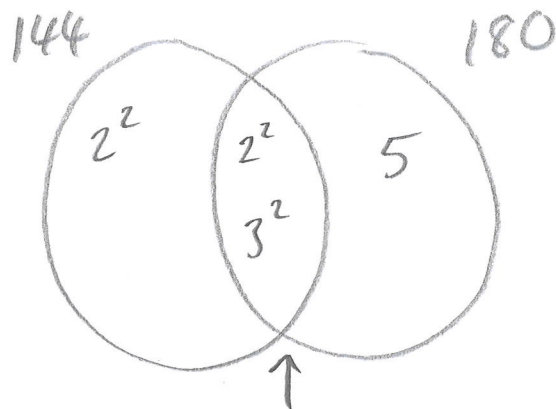
$2^2 \times 3^2 = \underline{\underline{36}}$

(2)

(Total for Question 19 is 4 marks)

20(a)   Leo is going to invest £2500 for 3 years. He will choose one of the following banks.

| **Bank of Bennett** | **Bank of Buckley** |
|---|---|
| 5.25% compound interest for the 1st year. <br><br> 4% compound interest for all future years. | 4.6% compound interest for the first 3 years |

Which bank will return the greatest amount of interest

$2500 \times 1.0525 \times 1.04^2 = 2845.96$

$2500 \times 1.046^3 = 2861.11$

Bank of Buckley

(3)

20(b)   Bank of Buckley have a special offer available of 4.7% compound interest for the first 3 years. Will this affect your answer to part (a)? Give a reason for your answer.

No, Bank of Buckley is already the better value

(1)

(Total for Question 20 is 4 marks)

21    The frequency table below shows the pocket money received by 35 pupils.

| Pocket Money | Frequency |
|---|---|
| $0 \leq x < 5$ | 7 |
| $5 \leq x < 8$ | 8 |
| $8 \leq x < 10$ | 16 |
| $10 \leq x < 20$ | 4 |

mp      mpxf
2.5      17.5
6.5      52
9        144
15       60
         ‾‾‾‾
         273.5

35

Work out an estimate for the mean amount of pocket money received by each pupil.

$273.5 \div 35 = £7.81$

(Total for Question 21 is 3 marks)

22    A number, n, is rounded to 2 significant figures.    ± 0.5
The result is 26.
Complete the error interval for n

$25.5 \leq n < 26.5$

(Total for Question 22 is 2 marks)

23(a)   Margot is going to play one game of snooker and one game of pool.
The probability that Margot wins a game of snooker is 0.9.
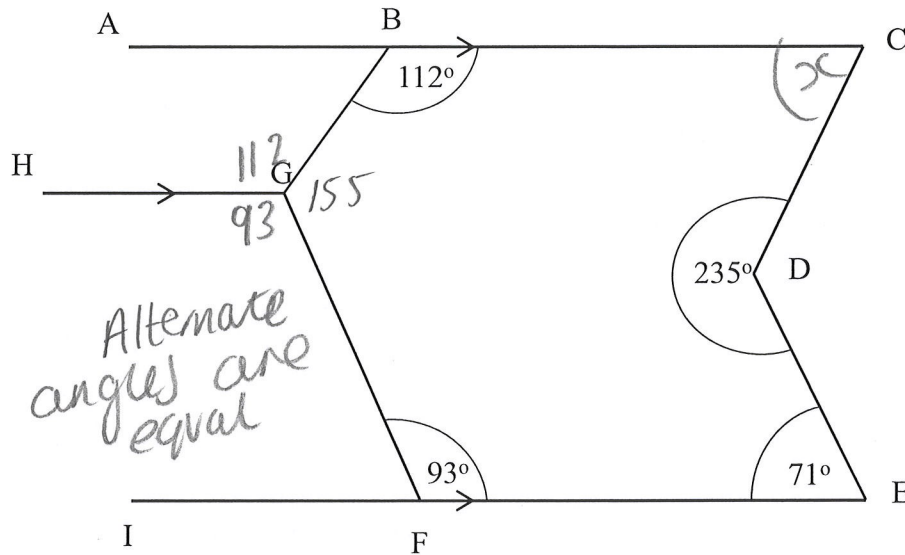The probability that Margot does not win a game of pool is 0.3.

Snooker                    Pool

$0.7$  win

$0.9$  Win

$0.3$  Not win

$0.7$  Win

$0.1$  not win

$0.3$  not win

(2)
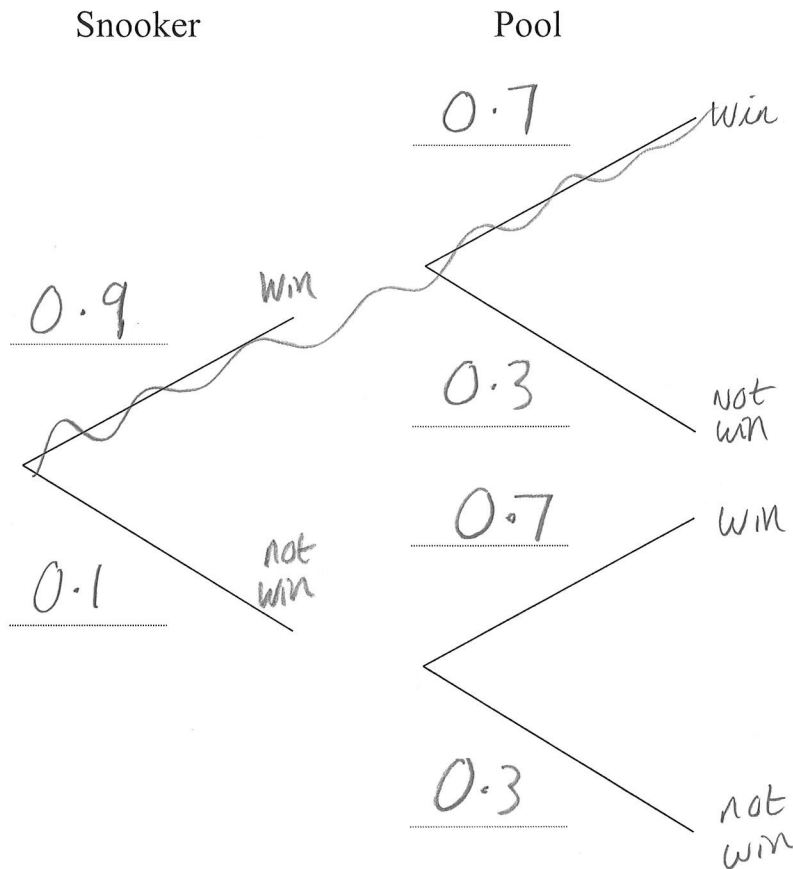
23(b)   Work out the probability that Margot wins at both snooker and pool.

$0.9 \times 0.7 = 0.63$

(2)

(Total for Question 23 is 4 marks)

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24    Shape BCDEFG is an irregular hexagon.
      Lines AC, HG & IE are parallel.

A _____ B _____→ _____ C

112°                                    x

H _____ 112 G 155

          93

Alternate
angles are
equal

          93°                    71° E
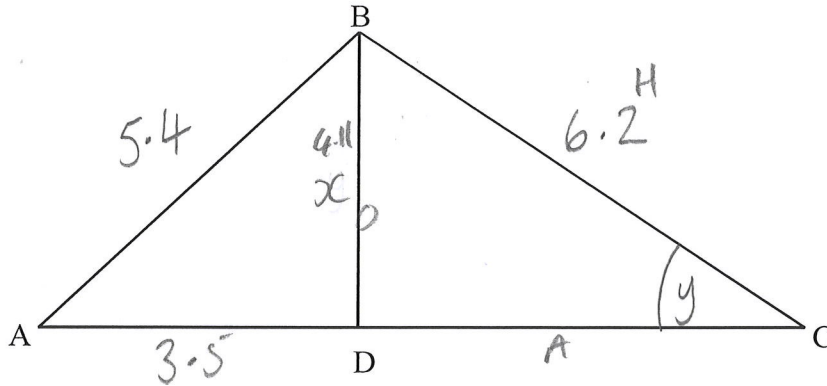
I        F

Work out the size of angle BCD

$(n-2) \times 180$

$(6-2) \times 180 = 720$

$720 - 112 - 155 - 93 - 71 - 235 = x$

$x = 54°$

235°   D

(Total for Question 24 is 5 marks)

25 Triangle ABC has been drawn below.
AB = 5.4 cm
BC = 6.2 cm
AD = 3.5 cm

B

5·4    4·11    6·2 H
       $x$
        D

A    3·5    D    A    (y)    C

Work out the size of angle BCD

$3.5^2 + x^2 = 5.4^2$

$12.25 + x^2 = 29.16$

$x^2 = 16.91$

$x = 4.11$

$Sin(x) = \dfrac{O}{H}$

$Sin(y) = \dfrac{4.11}{6.2}$

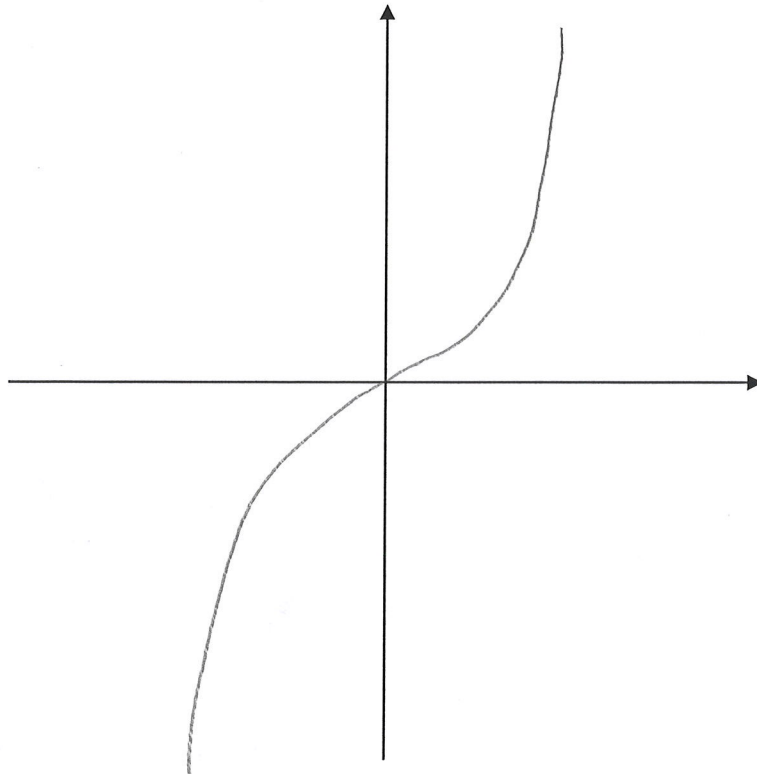$y = Sin^{-1}\left(\dfrac{4.11}{6.2}\right)$

$y = 41.52$

o

(Total for Question 25 is 4 marks)

26    Sketch the graph $y = x^3$



(Total for Question 26 is 2 marks)