Name:

GCSE Maths 2022
AQA Foundation Paper 3
Set B
Calculator

Corbettm𝛂ths

Equipment

1. A black ink ball-point pen.
2. A pencil.
3. An eraser.
4. A ruler.
5. A pair of compasses.
6. A protractor.

Guidance

1. Read each question carefully.
2. Check your answers seem right.
3. Always show your workings

Information

1. This paper has been created based on topics in the Advance Information.
2. Also see Corbettmaths for the checklist for the entire GCSE as these topics may still be useful for Paper 3
3. There is one question per topic - this paper is designed to give an opportunity to practice each topic rather than replicate the actual paper.
4. The marks for questions are shown in brackets

GCSE 2022 Resources

1. From the list of numbers

    7   9   12   21   23   30   36   45

    (a) write down the multiples of 7.

    ....
    (2)

    (b) write down the multiples of 5.

    ....
    (2)

2. Olivia thinks of two numbers.

    The lowest common multiple (LCM) of the two numbers is 36.
    The highest common factor (HCF) of the two numbers is 3.
    Both numbers are less than 15.

    Write down two possible numbers that Olivia could be thinking of.

    ....
    (2)

3. Calculate $\sqrt{6} + 1.7^3$
    Give your answer to 3 decimal places.

    ....
    (2)

4.   Sally says that $4^{-2} = -16$

Explain why Sally is wrong.

_____ **(1)**

5.   Write $\dfrac{4}{11}$ as a percentage.

Give your answer to 2 decimal places.

...........................%

(2)

_____

6.   In 2000 the population of a country was 4,580,000
      By 2022, the population had increased by 27%

Work out the population in 2022

....

(3)

7.   Orla weighed 3.77kg when she was born.
      On Orla's second birthday she weighed 12.8kg.

      Calculate the percentage increase in her weight.

.........................%

(3)

8.   Fiona leaves £1600 in the bank for four years.
      It earns compound interest of 3% each year.

      Calculate the total amount Fiona has in the bank at the end of the four years.

£.........................

(3)

9. Copper costs £5 per kilogram.
   Zinc costs £3.20 per kilogram.

   Copper and zinc are mixed in the ratio 4:1 to make brass.

   Work out the cost of 7 kilograms of brass.

   £.........................
   (3)

---

10. Here are four digits.

    9 4 7 5

    (a) Use two of these digits to make the largest possible two-digit number.

    ....
    (1)

    (b) Use all four of these digits to make the four-digit number closest to 5000.

    ....
    (1)

---

11. Nigel measures the time, t seconds, to complete a race as 14.8 seconds correct to the nearest tenth of a second.

    Write down the error interval for t.

    ....
    (2)

12. James is going on holiday in New York.
James changes £400 into dollars ($).

The exchange rate is £1 = $1.38

Work out how many dollars ($) James will receive.

....

(2)

13. Here are the names of six 2-D shapes

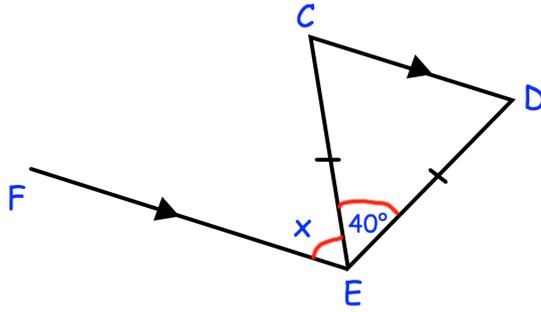Pentagon   Heptagon   Octagon   Decagon

Quadrilateral   Nonagon

Arrange the shapes in order of the number of sides

Lowest number of sides

Greatest number of sides

(2)
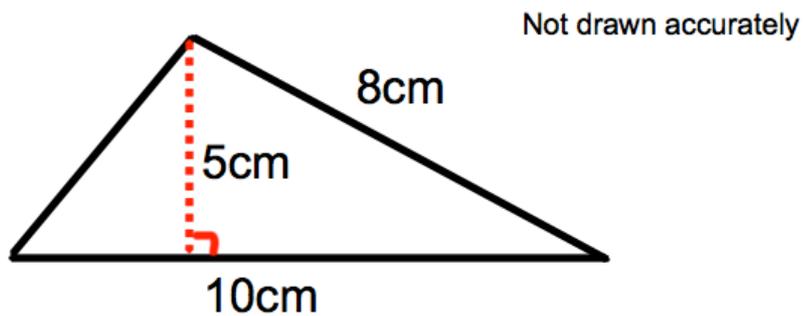
14.

EF and CD are parallel straight lines.
CE = DE
Angle *CED* = 40°

Find the size of angle *CEF*
Give a reason for each stage of your working.

(3)

15.

Not drawn accurately

8cm

5cm

10cm

Calculate the area of the triangle.

.........................cm²

(2)

16.   A car travels at 5m/s

       Write this speed in km/h

                                                                ………………..km/h
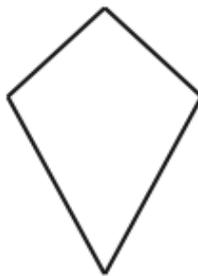   **(2)**

17.   A quadrilateral is drawn below.

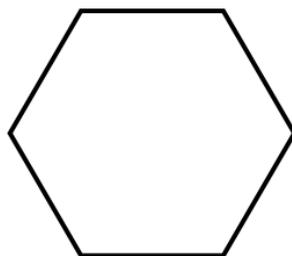   Draw any lines of symmetry on the quadrilateral.

                                                                (1)

18.   The diagram below shows a regular hexagon.

       (a) Write down the order of rotational symmetry of the hexagon.

                                                                ....
                                                                (1)

       (b) On the diagram draw in all the lines of symmetry.

                                                                (2)

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19. Here is part of a train timetable.

Southville	07 04
Leek	07 09
Jamestown	07 38
Lincoln	08 01
Gold City	08 39

(a) How long is the journey from Southville to Jamestown?

..........................minutes

(1)

(b) How long is the journey from Leek to Lincoln?

..........................minutes

(1)

The train leaves Gold City at 08 45.
It takes 33 minutes to travel to Washington.

(c) At what time does the train arrive in Washington?

....

(1)

Lenny lives in Jamestown and works in Lincoln.
He works Monday to Friday.
Lenny travels to work and back each day by train.

(c) How long does Lenny spend on the train each week?
Give your answer in hours and minutes.

.....................hours ....minutes

(3)

20. Robert drives for 8 hours at an average speed of 34mph.
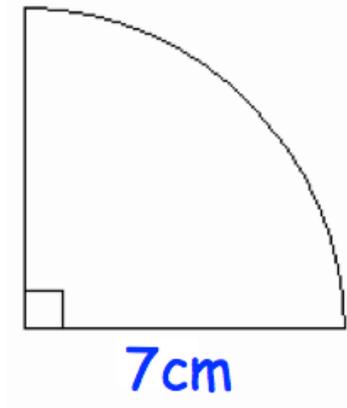
How far does Robert drive?

…………………………miles

(2)

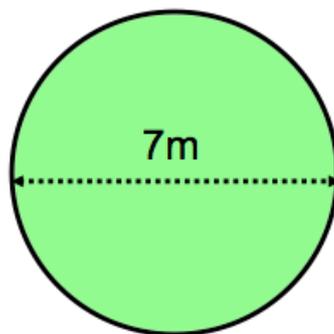21. Draw a circle with radius 5cm.

(2)

22.

7cm

Work out the perimeter of a quarter-circle with radius 7cm.
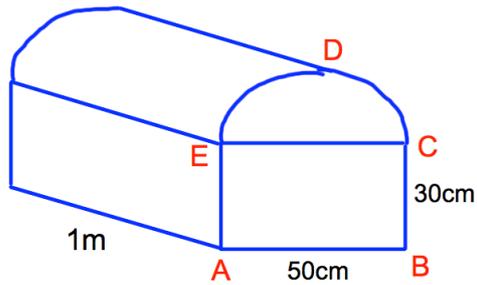
.........................cm

(3)

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23.   A circular flower bed has diameter 7 metres.

7m

Work out the area of the flower bed.
Give your answer correct to 1 decimal place.

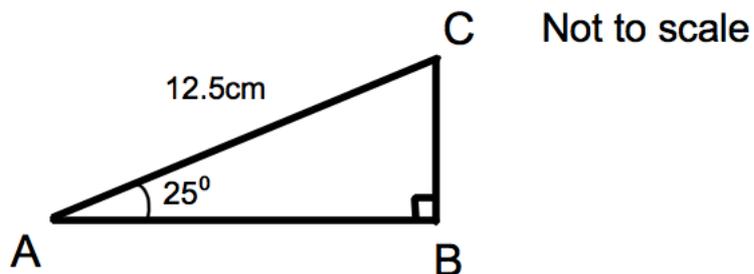.........................m²

(2)

24.

Shown above is a prism that is 1m long.

ABCDE is the cross-section of the prism.
ABCE is a rectangle and CDE is a semi-circle.

Calculate the volume of the prism.
Give your answer correct to 1 decimal place.

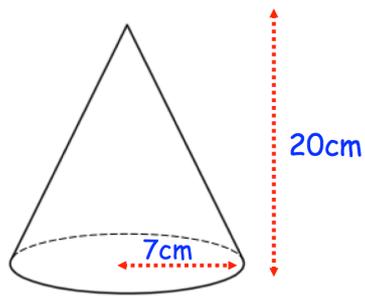......................... cm³

(4)

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25. Triangle ABC has a right angle.
Angle BAC is 25⁰
AC = 12.5cm

Calculate the length of AB

...................cm

(3)

26. A cone has base radius 7cm and perpendicular height 20cm.

Work out the volume of the cone.

........................cm³

(3)

27. $\mathbf{c} = \begin{pmatrix} -7 \\ 3 \end{pmatrix}$ and $\mathbf{d} = \begin{pmatrix} 4 \\ 8 \end{pmatrix}$

Work out $3\mathbf{c} + 2\mathbf{d}$

$\begin{pmatrix} \cdots \\ \cdots \end{pmatrix}$
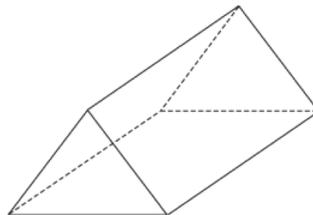
(2)

28. Below is a coffee table.

The length of the table is 40cm more that the width of the table.
The perimeter of the table is 3.8m

Find the size of the length of the table

..........................cm

(3)

29. Below is a solid shape.

(a) What is the mathematical name for the shape?

....

(1)

(b) Write down the number of vertices

....

(1)

(c) Write down the number of faces

....

(1)

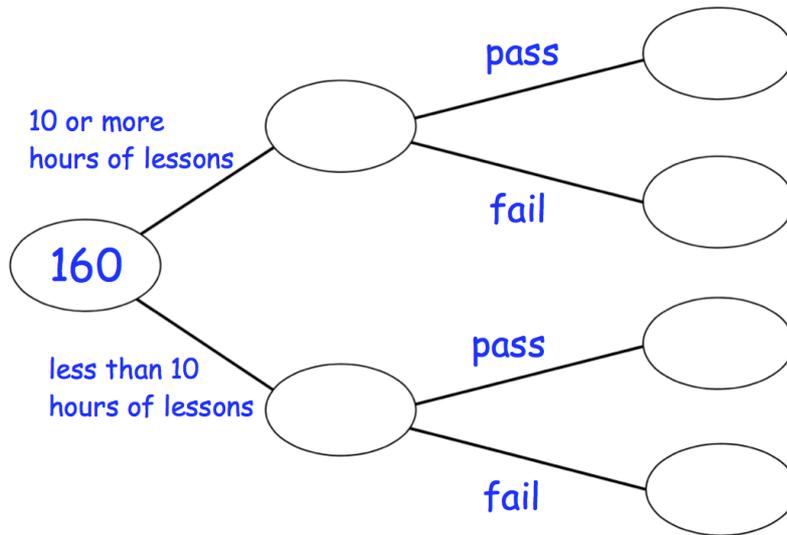(d) Write down the number of edges

....

(1)

30. 160 people sit their driving test.

108 people took 10 or more hours of driving lessons.
29 of the people who took 10 or more hours of driving lessons failed their test.
104 people passed their driving test altogether.

Use this information to complete the frequency tree.

(2)

31. There are 40 boys and girls at a youth club.

There are 23 girls.
9 girls play rounders.
4 boys do not play rounders.

How many boys play rounders at the youth club?

....

(2)

32. Tom has asked his friends which country they support in the Six Nations.
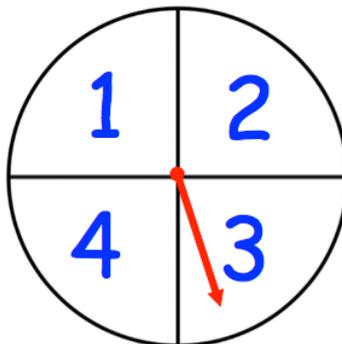He has shown the results in a bar chart.

The bar chart is accurately drawn, but Tom has forgotten to label the frequencies
Tom does remember that 9 people supported France.

Frequency

Scot   Eng   Wales   Fra   Ire   Italy
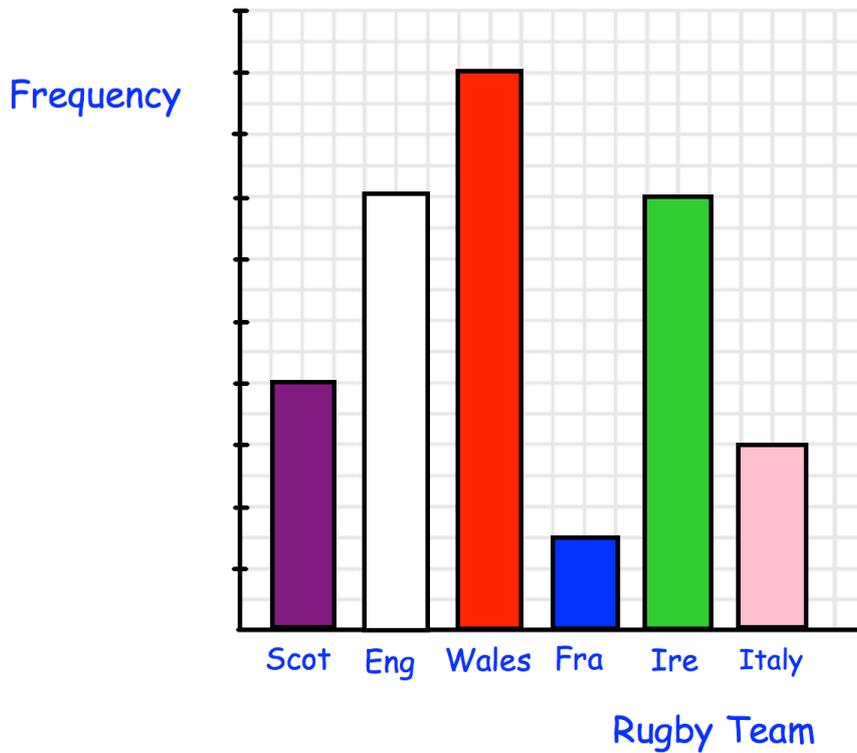
Rugby Team

Find the missing frequencies.

Rugby Team	Frequency
Scotland	
England	
Wales	
France	9
Ireland	
Italy	

(4)

33. Below is a biased four-sectioned spinner.

The probability of landing on a 2 is 0.25
The probability of landing on a 4 is 0.15
The probability of landing on a 1 is double the probability of a 3.

The spinner is spun 500 times.

Calculate the number of times you would expect it to land on 3

....
(4)

34. 8 boys and 8 girls from a class run 100m.

The times taken, to the nearest second, for each girl are:

     15   20   24   18   19   21   26   29
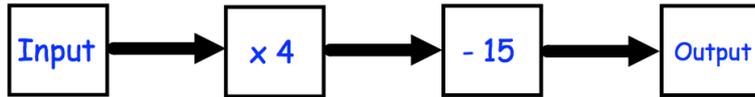
The mean of the boys' times is 25 seconds.
The range of the boys' times is 14 seconds.

Thomas says that "the boys in our class are faster than the girls."

Is he correct?

(5)

35.

```
┌───────┐      ┌─────┐      ┌──────┐      ┌────────┐
│ Input │ ───► │ × 4 │ ───► │ - 15 │ ───► │ Output │
└───────┘      └─────┘      └──────┘      └────────┘
```

(a) Work out the output, when the input is 10.

....

(1)

(b) Work out the input, when the output is 35.

....

(1)

(c) If the input is the same as the output, work out the input.

....

(1)

36. Expand and simplify   9(t + 3) + 3(2t − 11)

....

(2)

37. Simplify $3y \times 9y^2$

....

(1)

38. Here are the first four terms of a number sequence.

    2   5   8   11

    (a)   (i)   Write down the next term of the number sequence.

    ....
    (1)

    (ii)   Explain how you found your answer.

    ....
    (1)

    The 40th term of the number sequence is 119.

    (b)   Work out the 41st term of the number sequence.

    ....
    (1)

39.   Which of the following sequences is a geometric progression?

    Circle your answer

    10   20   30   40   10   20   35   55

    10   20   40   80   10   20   30   50

    (1)

40. The *n*th term of a sequence is   3n - 2

(a) Write down the first two terms of this sequence.

1st term ...., 2nd term ....

(2)

(b) Which term of the sequence is equal to 70?

....

(2)

(c) Explain why 101 is not a term in the sequence.

....

....

....

(2)

41. Given that $x = 9$ and $y = 5$

Work out the value of $x^2 - 7y$

....

(2)

42.　(a) Complete the table of values for $y = x^2 - 3x + 2$

x	-2	-1	0	1	2	3
y						

(2)

(b) On the grid, draw the graph of $y = x^2 - 3x + 2$ for the values of x from -2 to 3.
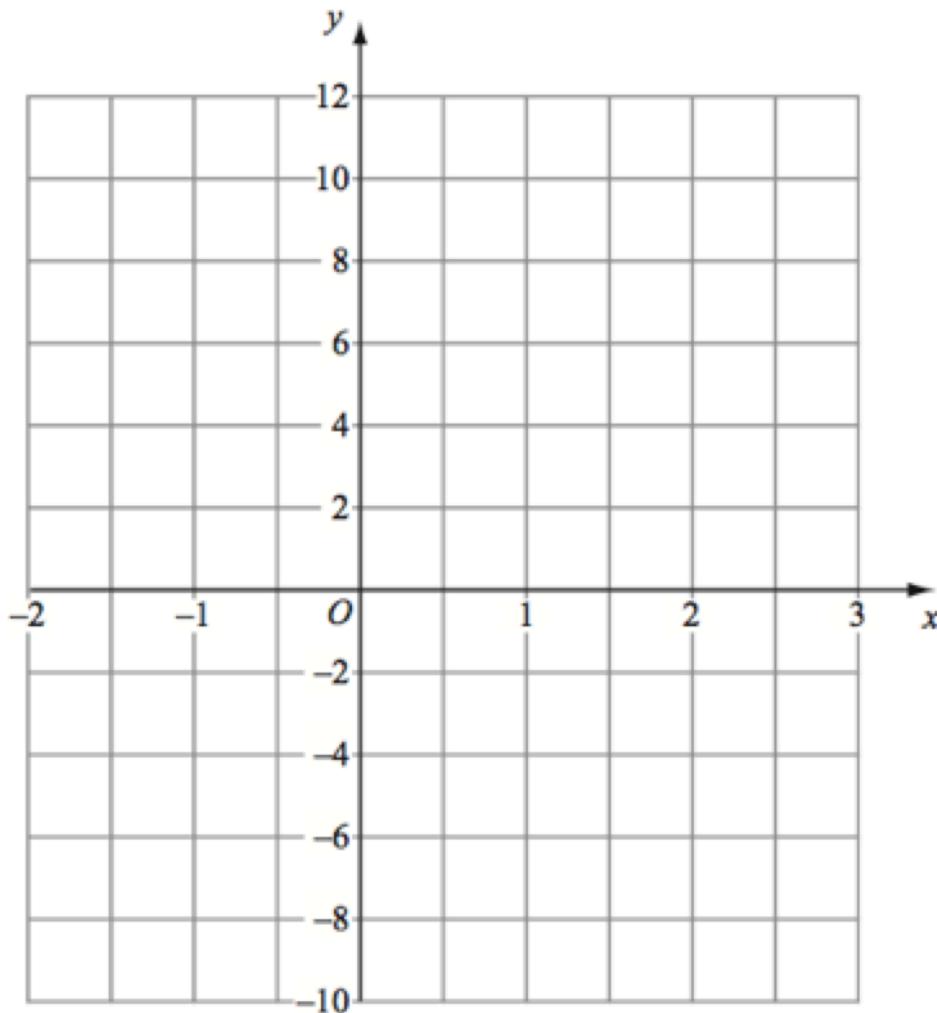
(2)

43.   Make *m* the subject of the formula

$$s = \frac{hm}{4}$$

m = ...

(2)

44.   Write down all the factors of 26.

....

(2)