Maths Predicted Paper

Foundation Paper 2 Calculator

**Q1.** Work out  4 + 3 × 5 − 1

Circle your answer.

16       18       28       34

**(Total 1 mark)**

**Q2.** Circle the fraction that is equal to



**(Total 1 mark)**

**Q3.** What is the largest two-digit prime number?

Circle your answer.

93                            95                            97                            99

**(Total 1 mark)**

**Q4.** Circle the decimal that is closest in value to



0.04      0.048      0.049      0.05

**(Total 1 mark)**

**Q5.** Work out     of 900



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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 2 marks)**

**Q6.** Here is a number line.



Which number is at A?

Circle your answer.

3.3       3.55       3.6       3.8

**(Total 1 mark)**

**Q7.** Saj wants to go to all 19 home games at a football club.

For each game, a ticket costs £28

A season ticket

costs £379

and

gives entry to all 19 home games.

In total, how much does Saj save by buying a season ticket?

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**(Total 3 marks)**

**Q8.** Show that there are **exactly** five 3-digit cube numbers.

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**(Total 3 marks)**

**Q9. 9**(a)  Use your calculator to work out    as a decimal.



Write down your full calculator display.

Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(1)**

(b)  Give your answer to part (a) to 1 decimal place.

Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**(1)**

**(Total 2 marks)**

**Q10.** Solve the equations.

(a)     *x* − 19 = 43

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*x* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(1)**

(b)     9*y* = 72

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*y* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(1)**

(c)       = 10



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*w* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**(1)**

**(Total 3 marks)**

**Q11.** Joe and Kyle share an amount of money in the ratio   7 : *n*

Joe gets 35% of the money.

Work out the value of *n*

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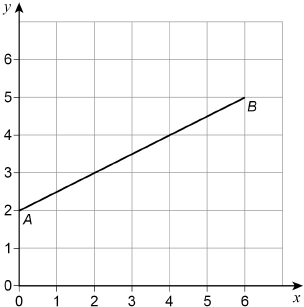
Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 2 marks)**

**Q12.** Line *AB* is shown on the grid.

*A* is the point (0, 2)

*B* is the point (6, 5)



(a)  Work out the coordinates of the midpoint of the line *AB*.

Answer  ( \_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_ )

**(1)**

(b)  *C* is another point on *AB*.

*C* is closer to *B* than to *A*.

The coordinates of *C* are whole numbers.

Work out the coordinates of *C*.

Answer  ( \_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_ ) **(1)**

(c)  On the grid, draw a line from point (0, 0) that is

parallel to *AB*

and

two thirds as long as *AB*.

**(2)**

**(Total 4 marks)**

**Q13.** On a map the distance between two towns is 6 cm.

The actual distance is 1.2 km

Work out the scale of the map as a ratio in its simplest form.

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Answer \_\_\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_\_

**(Total 3 marks)**

**Q14.** How many minutes are there in hours?



Circle your answer.

315       325       515       525

**(Total 1 mark)**

**Q15.** (a)  Divide 120 in the ratio 1 : 4

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Answer \_\_\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_\_

**(2)**

(b)  Write the ratio  7 : 4  in the form  *n* : 1

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Answer \_\_\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_\_

**(1)**

**(Total 3 marks)**

**Q16.** The population of England in 2013 is approximately 53 million.

It is predicted that

the population in 2018 will be 4% more than the population in 2013

and the population in 2023 will be 4% more than the population in 2018.

Work out the predicted population of England in 2023.

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 3 marks)**

**Q17.** Oil is sold in two sizes.



Which size is better value for money?

You **must** show your working.

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 4 marks)**

**Q18.** Here are seven numbers.

13              6              12              7              6              4              8

(a)     Work out the range of the seven numbers.

Circle your answer.

5                      6                      7                      8                      9

**(1)**

(b)     What is the mode of the seven numbers?

Circle your answer.

5                      6                      7                      8                      9

**(1)**

**(Total 2 marks)**

**Q19.** There are 240 cows on a farm.

(a)  On the farm,

number of bulls : number of cows = 1 : 30

How many bulls are there?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(1)**

(b)  Assume

the 240 cows produce milk for 10 months each year

each cow produces an average of 25 litres of milk per **day**.

Estimate the total milk production, in litres, of the 240 cows in one year.

You **must** show your working.

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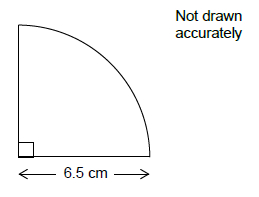
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**(4)**

**(Total 5 marks)**

**Q20.** The diagram shows a quarter-circle with radius 6.5 cm.



Work out the area of the quarter-circle.

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm2

**(Total 3 marks)**

**Q21.** A play area has thousands of coloured balls.  
They are white, pink or yellow.

Sam picks 10 balls at random.  
The table shows some of her results.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **white** | **pink** | **yellow** |
| **Frequency** | 4 |  |  |
| **Relative frequency** |  | 0.1 |  |

(a)     Complete the table.

**(3)**

(b)     Sam uses her results to estimate the proportion of white balls in the play area.

How could she make her estimate more reliable?

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**(Total 4 marks)**

**Q22.** Here are the marks of a student in four exams.

65        80        76        69

The student takes a fifth exam.  
His mean mark for the five exams is 70

Work out his mark in the **fifth** exam.

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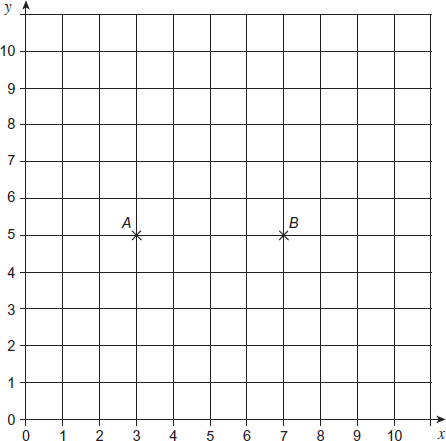
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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 3 marks)**

**Q23.** Points *A* and *B* are shown on the centimetre grid.



(a)     Draw a rectangle *ABCD* on the grid with area 12 cm2.

**(2)**

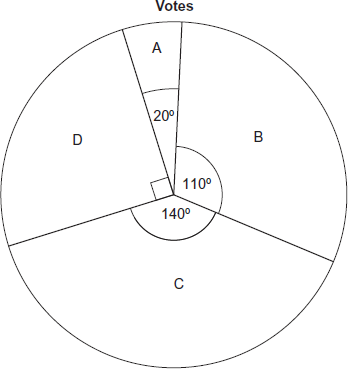
(b)     Write down the coordinates of point *C* and point *D*.

Answer *C* ( \_\_\_\_\_ , \_\_\_\_\_ ) and *D* ( \_\_\_\_\_ , \_\_\_\_\_ )

**(2)**

**(Total 4 marks)**

**Q24.** The pie chart shows information about how people voted in an election.



1800 people voted for D.

How many **more** people voted for C than B?

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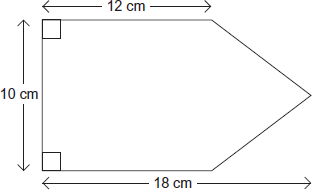
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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 3 marks)**

**Q25.** Work out the area of this pentagon.

Not drawn accurately



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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm2

**(Total 3 marks)**

**Q26.** Solve  4(3*x* − 2) = 2*x* − 5

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*x* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 3 marks)**

**Q27.** Amy has *x* beads.

Billy has three more beads than Amy.

Carly has four times as many beads as Billy.

Circle the expression for the number of beads that Carly has.

4*x* + 3       3*x* + 4       4(*x* + 3)       *x* + 12

**(Total 1 mark)**

**Q28.** Circle the expression that is equivalent to     2*a* + 5*a* × 4*a* – *a*

*a* + 20*a*²                    21*a*²                    28*a*² – *a*                    2*a* + 15*a*²

**(Total 1 mark)**

**Q29.** Expand and simplify     (2*x* + 5*y*)(3*x* − 8*y*)

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 3 marks)**

**Q30.** (a)     Factorise fully     9*a2* − 6*a*

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(2)**

(b)     Solve     *x2* − 12*x* + 20 = 0

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(3)**

**(Total 5 marks)**

**Q31.** A straight line

has gradient 4

and

passes through the point (5, 23)

Work out the equation of the line.

Give your answer in the form  *y* = *mx* + *c*

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 3 marks)**

**Q32.** *x* is an integer.

–4 < *x* ≤ 2 and 2 ≤ *x* + 3 < 9

Work out all the possible values of *x*.

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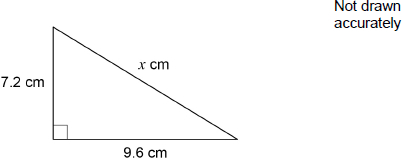
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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 3 marks)**

**Q33.** Here is a right-angled triangle.



Show that  *x* = 12

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**(Total 2 marks)**

**Q34.** Here is an advert.

|  |  |
| --- | --- |
| **Hair Salon** | |
| Trim and Colour | £65.50 |
| Wash and Dry | £15.50 |
| Perm | £68.00 |
| Special Offer **10% off** | |

Jen has a Trim and Colour.  
She uses the special offer.

How much does she pay?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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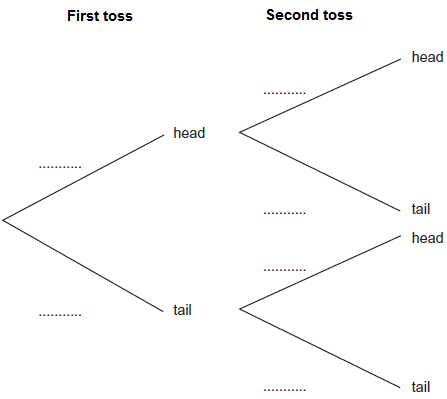
**(Total 2 marks)**

**Q35.** The probability of a biased coin landing on heads is



The coin is tossed twice.

Complete the tree diagram.



**(Total 3 marks)**