

# SILS 4


## Mathematics Homework Booklet



Year: 10

Scheme: Foundation

Term: 1

| Homework Sheet 1   | Week Beginning 31 <sup>st</sup> August   |
|--|--|
| 1: Which metric unit would you use to measure the height of a door?  | 11: Factorise $2a + 6$   |
| 2: Measure the angle below.<br> | 12: $f(a) = a + 3$ . Find $f(7)$   |
| 3: Calculate the value of $7 + (-4)$   | 13: A pack of 5 pens costs 40p. Find the cost of 15 pens.  |
| 4: Calculate $0.26 + 0.89 - 1.047$   | C14: Alex and Ben share money in the ratio 3:4. In total they have £140. Work out how much each gets.  |
| 5: Work out $\frac{1}{4} \times 84$  | 15: A pack of 5 pens costs 40p. Find a relationship between the number of pens, $p$ , and the cost in pence, $C$ .   |
| 6: Calculate $\frac{1}{4} + \frac{2}{3}$   | 16: A bag contains 5 black counters, 4 blue counters, and 1 white counter. A counter is taken from the bag at random and replaced. Write down the probability that the counter was blue. |
| 7: Convert 0.5 to a fraction   | C17: In a box of 500 matches, 485 of them will light. Estimate the probability that a match taken from a box at random will light.   |
| 8: Simplify $a + a + a + a + a$  | 18: Sam asks his friends who their favourite football team is. Describe this type of data.   |
| 9: Find the value of $3a$ when $a = 7$   | 19: Sam draws a pictogram to display the data from question 18, using 1 football to show 4 people. If 12 people support Arsenal, how many football pictures should Sam draw?             |

|                       |  |
|-----------------------|--|
| 10: Expand $3(a + 4)$ | 20: In a pie chart, what angle represents half the people? |
| Mark:                 | Effort:  |

Exam Question Homework - Different Measures:

|       |  |          |
|-------|--|----------|
| 1     | Estimate each of the following.<br>Circle your answer.                         |          |
| 1 (a) | The thickness of a DVD case.   | [1 mark] |
|       | 0.08 mm      0.8 mm      8 mm      80 mm                                       |          |
| 1 (b) | The weight of a tennis ball.   | [1 mark] |
|       | 5.7 g      57 g      570 g      5700 g   |          |
| 1 (c) | The area of this page.   | [1 mark] |
|       | 50 cm <sup>2</sup> 100 cm <sup>2</sup> 250 cm <sup>2</sup> 650 cm <sup>2</sup> |          |
| 1 (d) | The height of a 4-year old child.  | [1 mark] |
|       | 10 cm      100 cm      200 cm      300 cm                                      |          |

The diagram shows the position of ships A and B.

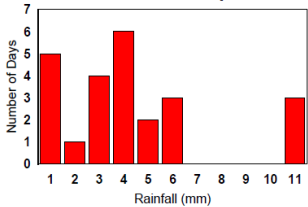
Circle the size of angle  $x$

[1 mark]

55°      65°      75°      85°      95°

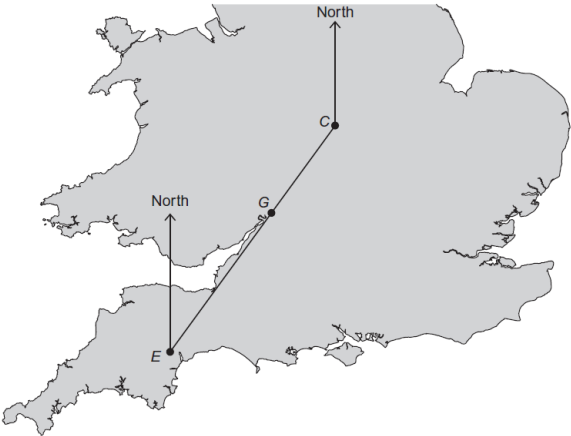
In the space below draw an angle of 135°

[1 mark]

| Homework Sheet 2  | Week Beginning 7 <sup>th</sup> September  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
|---|---|---------------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|----|---|
| 1: Which imperial unit would you use to measure the height of a door? | 11: Factorise $10b + 5$   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 2: In the space below draw an angle of $65^\circ$                     | 12: $f:b \rightarrow b - 4$ . Find $f:17$   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 3: Work out $10 + 9 \times 7 - 4$                                     | 13: A game of Rugby Union lasts 80 minutes. Find the length of time of 5 games.   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 4: Calculate $7 \times 0.78$  | C14: Alex and Ben share money in the ration 3:4. In total they have £140. Work out how much more Ben gets than Alex.  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 5: Convert $3\frac{1}{4}$ to an improper fraction                     | 15: A game of Rugby Union lasts 80 minutes. Find a relationship between the number of games played, $g$ , and the number of minutes played, $m$ .   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 6: Calculate $\frac{7}{9} - \frac{5}{12}$                             | 16: A bag contains 5 black counters, 4 blue counters, and 1 white counter. A counter is taken from the bag at random and replaced. Work out the probability that the counter was black or white.  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 7: Convert $\frac{1}{4}$ to a decimal                                 | C17: A factory produces lightbulbs. Testing shows that for every 1000 lightbulbs tested, 7 are defective. Estimate the probability that a bulb chosen at random will be defective.  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 8: Simplify $4 \times b$  | 18: Jill looks on the internet and collects data about the number of people who live in different countries. Describe this type of data.  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 9: Find the value of $\frac{b}{4}$ when $b = 30$                      | 19: <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p style="text-align: center;"><b>Rainfall in April</b></p>  <table border="1"> <caption>Rainfall in April Data</caption> <thead> <tr> <th>Rainfall (mm)</th> <th>Number of Days</th> </tr> </thead> <tbody> <tr><td>1</td><td>5</td></tr> <tr><td>2</td><td>1</td></tr> <tr><td>3</td><td>4</td></tr> <tr><td>4</td><td>6</td></tr> <tr><td>5</td><td>2</td></tr> <tr><td>6</td><td>3</td></tr> <tr><td>7</td><td>0</td></tr> <tr><td>8</td><td>0</td></tr> <tr><td>9</td><td>0</td></tr> <tr><td>10</td><td>0</td></tr> <tr><td>11</td><td>3</td></tr> </tbody> </table> </div> <div style="flex: 1; padding-left: 20px;"> <p>How many days had 3mm of rainfall?</p> </div> </div> | Rainfall (mm) | Number of Days | 1 | 5 | 2 | 1 | 3 | 4 | 4 | 6 | 5 | 2 | 6 | 3 | 7 | 0 | 8 | 0 | 9 | 0 | 10 | 0 | 11 | 3 |
| Rainfall (mm)   | Number of Days  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 1   | 5   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 2   | 1   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 3   | 4   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 4   | 6   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 5   | 2   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 6   | 3   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 7   | 0   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 8   | 0   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 9   | 0   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 10  | 0   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 11  | 3   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 10: Expand $3(4 + b)$   | 20: A pie chart has a sector of $45^\circ$ . What fraction of the people are represented in the sector?   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| Mark:   | Effort:   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |

Exam Question Homework - Angles and Bearings:

14 The map shows the cities Coventry (C), Gloucester (G) and Exeter (E).

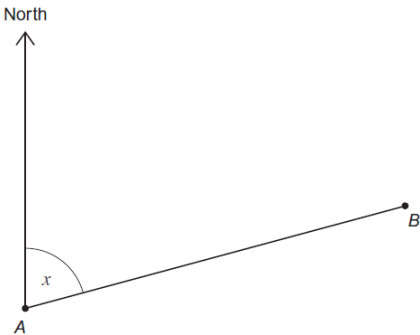


EGC is a straight line.  
The bearing from Exeter to Coventry is 036°

14 (a) What is the bearing from Gloucester to Coventry? [1 mark]

Answer ..... °

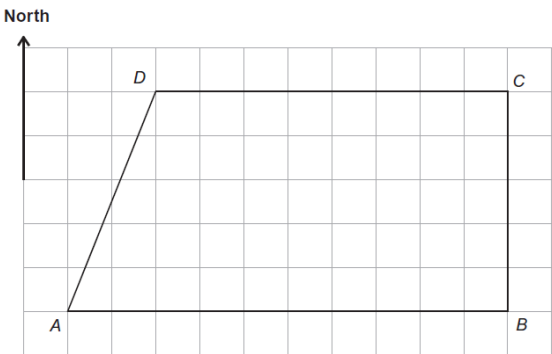
The diagram shows the position of ships A and B.



What is the 3-figure bearing of B from A? [1 mark]

Answer ..... °


Straight paths AB, BC, CD and DA are shown on the square grid.



Are these statements true or false?  
Tick a box for each statement.

|                     | True                     | False                    |
|---------------------|--------------------------|--------------------------|
| A is due East of B  | <input type="checkbox"/> | <input type="checkbox"/> |
| B is due South of C | <input type="checkbox"/> | <input type="checkbox"/> |

(2 marks)

|  |  |
|--|--|
| Homework Sheet 3   | Week Beginning 14 <sup>th</sup> September  |
| 1: Which metric unit would you use to measure the length of a skirt?   | 11: Factorise $7c + 21d$   |
| 2: Measure the bearing from A to B.<br> | 12: $f(c) = 3c$ . Find the value of $f(8)$   |
| 3: You are given the $47 + 65 = 112$ . Complete these calculations.<br><br>..... — ..... = 47<br><br>..... — ..... = 65  | 13: A haiku has 15 syllables. Work out the number of syllables that 6 haiku would have.  |
| 4: Work out the value of $6.76 \div 13$  | C14: Alex and Ben share money in the ration 3:4. Ben gets £140. Work out how much Alex gets.   |
| 5: Convert $\frac{5}{3}$ to a mixed number.  | 15: A haiku has 15 syllables. Find a relationship between the number of haiku, $h$ , and the number of syllables, $s$ .  |
| 6: Calculate $\frac{3}{4} \times \frac{6}{7}$  | 16: A bag contains 5 black counters, 4 blue counters, and 1 white counter. A counter is taken from the bag at random and replaced. Write down the probability that the counter was <b>not</b> white.                           |
| 7: Convert 0.75 to a fraction.   | C17: Statistics from a train company suggest that in every 800 trains going to a station, 27 are late. Estimate the probability that the next train at the station will be late.   |
| 8: Simplify $c + c + c + c + d + d + d$  | 18: Amir measures the length of different textbooks used in his subjects. Describe this type of data   |
| 9: Find the value of $3c + 5d$ when $c = 2$ and $d = 5$  | 19: Shaun draw a pictogram to show the different types of houses in a new estate, with each picture worth 10 houses. The pictogram has 9 pictures in the 'semi-detached' row. How many semi-detached houses are in the estate? |
| 10: Expand $5(2c + d)$   | C20: In a pie chart $\frac{1}{5}$ of the people would be represented by what size angle?   |
| Mark:  | Effort:  |

Exam Question Homework - Operations with integers:

Work out

$$\begin{array}{r} 196 + 324 \\ \hline 4 \end{array}$$

[1 mark]

\_\_\_\_\_

Answer \_\_\_\_\_

$$\begin{array}{r} 738 \\ \hline 2 + 4 \end{array}$$

[1 mark]

\_\_\_\_\_

Answer

The temperature falls from 6°C by 10 degrees.

Work out the new temperature.

[1 mark]

\_\_\_\_\_

Answer \_\_\_\_\_ °C

George rents House A.


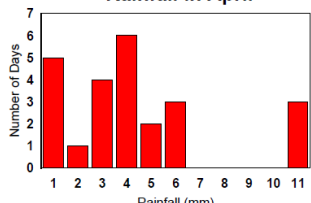
He pays the rent of £580 from his bank account.

The balance left in his account is £476.39

What was his bank balance **before** he paid the rent?

[2 marks]



|   |  |
|---|--|
| Homework Sheet 4  | Week Beginning 21 <sup>st</sup> September  |
| 1: Which imperial unit would you use to measure the length of a skirt?  | 11: Factorise $12d + 8$  |
| 2: Draw point B on a bearing of $075^\circ$ from point A<br> | 12: $f:d \rightarrow 4d - 7$ . Find $f:9$  |
| 3: Work out the value of $-9 - (-5)$  | C13: It takes 200g of flour to make 5 fairy cakes. How much flour would it take to make 8 fairy cakes?   |
| 4: Work out $3.2 + 0.87 - 1.38$   | C14: Alex and Ben share money in the ration 3:4. Ben gets £140 more than Alex. Work out how much each gets.  |
| 5: Calculate $\frac{2}{5}$ of 35  | 15: It takes 200g of flour to make 5 fairy cakes. Find a relationship between the weight of flour, $f$ , and the number of fairy cakes, $c$ .  |
| 6: Calculate $\frac{4}{5} \div \frac{2}{11}$  | 16: A fair 5 sided spinner has the numbers 1, 2, 3, 4, 5. Write down the probability of spinning a 4.  |
| 7: Convert $\frac{1}{3}$ to a decimal   | C17: A biased die is rolled 90 times. On 7 of the rolls, the die lands on 6. Estimate the probability that the next time the die is rolled it will land on a 6.  |
| 8: Simplify $3 \times d \times 5$   | 18: Mollie rolls a dice 40 times and tallies the results. Describe this type of data.  |
| 9: Find the value of $d^2$ when $d = 4$   | 19: <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p style="text-align: center;"><b>Rainfall in April</b></p>  </div> <div style="flex: 1;"> <p>Which amounts of rainfall did not occur in April?</p> </div> </div> |
| 10: Expand $6(3d - 7)$  | 20: In a pie chart, a sector has $72^\circ$ . What fraction of the people does the sector represent?   |
| Mark:   | Effort:  |

The cost of fruit at a shop is shown.

|            |               |
|------------|---------------|
| Bananas    | 86p per kg    |
| Plums      | £ 2.80 per kg |
| Pineapples | £ 1.25 each   |
| Limes      | 40p each      |
| Melons     | £ 1.79 each   |

Lynn buys 1.5 kg of bananas and 0.5 kg of plums.

Work out the total cost.

(4 marks)

Lynn buys

one box of cereal costing £2.45

one carton of juice costing £1.79

and

two boxes of eggs.

She pays with a £10 note.

She gets £1.94 change.

Work out the cost of **one** box of eggs.

[4 marks]

Vikki makes 150 cupcakes.

She pays £20 to hire a stall to sell her cupcakes.


Each cupcake costs 35p to make.

She sells  $\frac{4}{5}$  of her cupcakes for £1.40 each.

She sells the rest for £1 each.

Work out the profit she makes.

[7 marks]

|  |   |
|--|---|
| Homework Sheet 5   | Week Beginning 28 <sup>th</sup> September   |
| 1: Which metric unit would you use to measure the width of a washing machine?                                    | 11: Factorise $8e - 20$   |
| 2: Measure the angle below.<br> | 12: $f(e) = e^2$ . Find $f(7)$  |
| 3: Work out $12 - 25 \div 5 \times 2$  | C13: A 750g box of cereal costs £3.30. How much would a 1kg box cost?   |
| 4: Work out $23 \times 8.4$  | C14: Russell, Sarah, and Terry share money in the ratio 2:5:8. In total they have £120. Work out how much each gets.  |
| 5: Convert $2\frac{5}{6}$ to an improper fraction  | C15: A 750g box of cereal costs £3.30. Find a relationship between the weight of a box, $w$ , and the cost in pence, $c$ .  |
| 6: Calculate $\frac{3}{8} + \frac{5}{28}$  | 16: A fair 5 sided spinner has the numbers 1, 2, 3, 4, 5. Write down the probability of spinning an odd number.   |
| 7: Convert $0.\dot{6}$ to a fraction   | 17: In one week 40 cars are booked into a garage to have their MOT. Out of the 40 cars 3 of them fail their MOT. Use this information to estimate the probability that the next car at the garage will fail its MOT.  |
| 8: Simplify $5e + 4f + 2f + 6e$  | 18: Chris finds a page in his RE textbook which tells him the most common religion in each major country. Describe this type of data.   |
| 9: Find the value of $5e - 3f$ when $e = 4$ and $f = 6$  | 19: Chris is going to draw a pictogram to show the most common religions of different countries, using a circle to represent 5 countries. If there are 25 countries listed with Hinduism as the most common religion, how many circles will Chris need to draw? |
| 10: Find the value of $8(2e - 7f)$   | 20: Three quarters of people in an estate go to a certain school. What angle would be used to represent this fraction in a pie chart?   |
| Mark:  | Effort:   |

Exam Question Homework - Operations with fractions:

Circle the smallest number.

[1 mark]

$$\frac{11}{20}$$

$$\frac{3}{10}$$

$$\frac{1}{5}$$

$$\frac{1}{4}$$

Work out  $1\frac{2}{3} \times 4\frac{1}{5}$

Give your answer in its simplest form.

[2 marks]

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Answer \_\_\_\_\_

Circle the decimal that is equivalent to  $\frac{21}{20}$

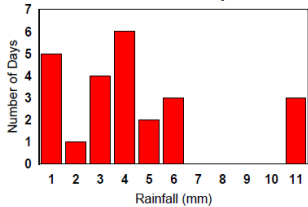
[1 mark]

1.01

1.05

1.1

1.5

|  |   |
|--|---|
| Homework Sheet 6   | Week Beginning 5 <sup>th</sup> October  |
| 1: Which imperial unit would you use to measure the width of a washing machine?  | 11: Factorise $15g - 10h$   |
| 2: In the space below, draw an angle of $137^\circ$  | 12: $f:g \rightarrow 10 - g$ . Find $f:6$   |
| 3: You are given that $317 - 169 = 148$ . Complete these calculations.<br><br>..... + ..... = 317<br><br>..... - ..... = 169 | C13: A 50g chocolate bar costs 60p. How much does each gram cost?   |
| 4: Work out $8.32 \div 8$  | C14: Russell, Sarah, and Terry share money in the ratio 2:5:8. In total they have £120. Work out how much more Terry gets than Russell.   |
| 5: Convert $\frac{19}{7}$ to a mixed number  | C15: A 50g chocolate bar costs 60p. Find a relationship between the weight of a bar, $w$ , and the cost of a chocolate bar in pence, $c$ .  |
| 6: Calculate $\frac{11}{12} - \frac{4}{9}$   | 16: A fair 5 sided spinner has the numbers 1, 2, 3, 4, 5. Write down the probability of spinning a square number.   |
| 7: Convert $\frac{1}{5}$ to a decimal.   | C17: Rajesh records the purchases of 40 people in his shop. 17 of them purchase bread. Estimate the probability that the next person to purchase from the shop buys bread.  |
| 8: Simplify $5 \times g \times h$  | 18: Rajesh records the purchases of 40 people in his shop. Describe this type of data.  |
| 9: Find the value of $6g - h^2$ when $g = 5$ and $h = 5$   | 19: <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p style="text-align: center;"><b>Rainfall in April</b></p>  </div> <div style="flex: 1; padding-left: 20px;"> <p>How many days had more than 4mm of rainfall?</p> </div> </div> |
| 10: Expand $9(g - 4h)$   | 20: A pie chart drawn to represent different makes of cars has an angle of $36^\circ$ for Ford. What fraction of the cars are Fords?  |
| Mark:  | Effort:   |

Exam Question Homework - Manipulating Expressions:

(a) Simplify  $3 \times 2m$

[1 mark]

Answer .....

(b) Simplify  $9x + 2y - 3x + 6y$

[2 marks]

Answer .....

4 more than  $n$  is

$$4n$$

$$n^4$$

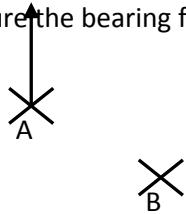
$$n + 4$$

$$4 - n$$

[1 mark]

Work out the value of  $5a + 2b$  when  $a = 4$  and  $b = 3$

[1 mark]

|  |  |
|--|--|
| Homework Sheet 7   | Week Beginning 12 <sup>th</sup> October  |
| 1: Which metric unit would you use to measure the size of a TV screen?   | 11: Factorise $24 - 18j$   |
| 2: Measure the bearing from A to B.<br> | 12: $f(j) = 6j + 5$ . Find $f(\frac{1}{3})$  |
| 3: Work out the value of $3 \times -8$   | C13: The cost of a 300g jar of coffee is £1.20. How much coffee do you get for 1p?   |
| 4: Work out $4.7 \times 8.6$   | C14: Russell, Sarah, and Terry share money in the ratio 2:5:8. Sarah has £120. Work out how much Russell and Terry get.  |
| 5: Calculate $\frac{4}{9} \times 108$  | C15: The cost of a 300g jar of coffee is £1.20. Find a relationship between the weight of coffee, $w$ , and the cost of the coffee in pence, $c$ .   |
| 6: Calculate $\frac{3}{8} \times \frac{4}{9}$  | 16: A fair 5 sided spinner has the numbers 1, 2, 3, 4, 5. Write down the probability of spinning a 3 or a 4.   |
| 7: Convert 0.7 to a fraction   | C17: Samantha takes some colouring pencils from a box in her classroom. Out of the 15 pencils she takes, 12 of them need sharpening before they can be used. Estimate the probability that the next pencil she takes will need sharpening. |
| 8: Simplify $8 + 5j + 6 + 2j$  | 18: Katie looks online at the different cinemas in her area to compare ticket prices. Describe this type of data.  |
| 9: Find the value of $12 + 4j$ when $j = \frac{1}{2}$  | 19: Samantha is drawing a pictogram to show the number of pencils of different colours in the box, with each picture of a pencil meaning 6 pencils. If Samantha draws 4 red pencils, how many red pencils are there in the box?            |
| 10: Simplify $5(8 - 3j)$   | 20: A chocolate bar contains $\frac{1}{12}$ fat. What angle would be used to represent the fat in a pie chart?   |
| Mark:  | Effort:  |

Exam Question Homework - Expanding and Factorising:

$6x + 3$  factorises to

$3(x + 1)$

$3(2x + 1)$

$6(x + 1)$

$6(x + 3)$

[1 mark]

Multiply out and simplify  $(2p - 5q)(3p + q)$

(Total 3 marks)

Factorise fully  $12x^3 - 8xyz$

.....

Answer .....

(2)

Factorise  $x^2 + 3x + 2$

.....

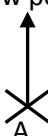
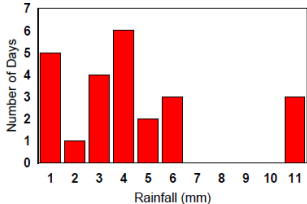
Answer .....

(2)



Exam Question Holiday Homework:

|  |                                      |                  |
|--|--------------------------------------|------------------|
| Complete the boxes to make the calculations correct. |                                      |                  |
| 24   | +                                    | <div></div> = 40 |
| <div></div>  | ×                                    | 5 = 70           |
| <div></div>  | ÷                                    | 6 = 15           |
| [3 marks]  |                                      |                  |
| Work out   | $(-8) + (-3)$                        | [1 mark]         |
| .....  |                                      |                  |
| Answer .....   |                                      |                  |
| Work out   | $6 \times (-4)$                      | [1 mark]         |
| .....  |                                      |                  |
| Answer .....   |                                      |                  |
| Work out   | $\frac{-14}{-2}$                     | [1 mark]         |
| .....  |                                      |                  |
| Answer .....   |                                      |                  |
| Work out   | $0.6 + 0.27 - 0.08$                  | [2 marks]        |
| $P = 2L + 3W - 6Y$                                   |                                      |                  |
| Work out the value of $P$ when                       | $L = 5, W = 4$ and $Y = \frac{1}{2}$ | [3 marks]        |
| (a) Expand   | $3(x + 5)$                           | (1)              |
| (b) Factorise  | $6a - 9$                             | (1)              |
| (Total 2 marks)                                      |                                      |                  |

|  |  |
|--|--|
| Homework Sheet 8   | Week Beginning 26 <sup>th</sup> October  |
| 1: Which imperial unit would you use to measure the size of a TV screen?   | 11: Factorise $k^2 + 3k$   |
| 2: Draw point B on a bearing of $105^\circ$ from point A.<br> | 12: $f:k \rightarrow k^2 - 3$ . Find $f:-5$  |
| 3: Work out $(3 + 6)^2 \div (5 + 8)$   | C13: To fill a 60 litre car petrol tank costs £68.40. Calculate the cost per litre.  |
| 4: Work out $4.6 \div 0.2$   | C14: Russell, Sarah, and Terry share money in the ratio 2:5:8. Russell gets £120 less than Terry. Work out how much each gets.   |
| 5: Convert $4\frac{3}{8}$ to improper fraction   | C15: To fill a 60 litre car petrol tank costs £68.40. Find a relationship between the volume of petrol, $v$ , and the cost of petrol in £, $c$ .   |
| 6: Calculate $\frac{8}{15} \div \frac{2}{9}$   | 16: A fair 5 sided spinner has the numbers 1, 2, 3, 4, 5. Write down the probability of spinning a number that is <b>not</b> 4.  |
| 7: Convert $\frac{13}{20}$ to a decimal  | C17: Manuel talks to his friends and records information about the different subjects they are taking for GCSE. 8 of his friends are taking Computing, 5 are not. Estimate the probability that the next friend he asks will be taking computing.  |
| 8: Simplify $7 \times k \times 4 \times m$   | 18: Manuel talks to his friends and records information about the different subjects they are taking for GCSE. Describe this type of data.   |
| 9: Find the value of $km$ when $k = 3$ and $m = -4$  | 19: <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p style="text-align: center;"><b>Rainfall in April</b></p>  </div> <div style="flex: 1; padding-left: 20px;"> <p>How many more days had 4mm of rainfall than 5 mm of rainfall?</p> </div> </div> |
| 10: Expand $k(k + m)$  | 20: A pie chart is drawn to show the proportion of time spent on different subjects in school. 4 out of 24 hours a week are spent on Maths. What angle would be drawn to show this in a pie chart?   |
| Mark:  | Effort:  |

You are given that  $p = m + 5$

Which **one** of the following is true?  
Circle your answer.

[1 mark]

$$m = p + 5$$

$$m + p = 5$$

$$m = 5 - p$$

$$m = p - 5$$

2: Work out the value of each function:

a) If  $f(x) = \frac{-x^2 + 8}{8}$ , find  $f(8)$

b) If  $h(x) = -7(x - 3)^2$ , find  $h(10)$

$E = VR$  rearranges to


$$R = E - V$$

$$R = V - E$$

$$R = \frac{E}{V}$$

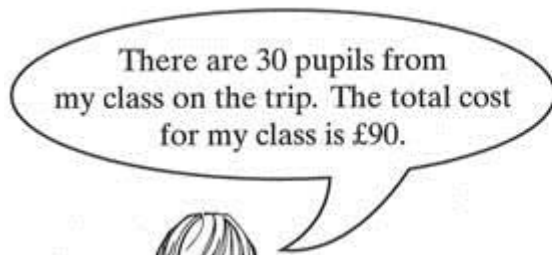
$$R = \frac{V}{E}$$

[1 mark]

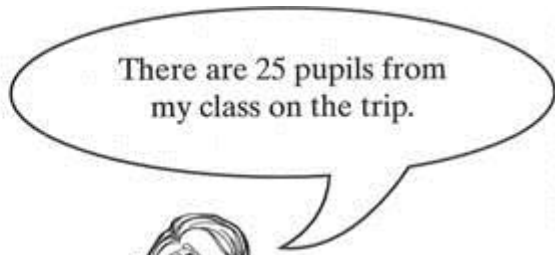
|  |   |
|--|---|
| Homework Sheet 9   | Week Beginning 2 <sup>nd</sup> November   |
| 1: Which metric unit would you use to measure the size of a nail?  | 11: Factorise $n^2 - mn$  |
| 2: Measure the angle below<br>                        | 12: Make $x$ the subject of $m = \frac{x}{n} + 5$   |
| 3: You are given that $16 \times 14 = 224$ . Complete these calculations<br><br>..... $\div$ ..... = 14<br><br>..... $\div$ ..... = 16 | C13: It costs £28 for 5 adult cinema tickets. How much would it cost of 9 adult cinema tickets?   |
| 4: Work out $0.7 - 0.25 + 2.48$  | C14: Russell, Sarah, and Terry share money in the ratio 2:5:8. If Sarah gets an extra £120, she will have the same as Terry. Work out how much each gets.   |
| 5: Convert $\frac{34}{9}$ to a mixed number  | C15: It costs £28 for 5 adult cinema tickets. Work out a relationship between the cost for adults in £, $c$ , and the number of adults, $a$ .   |
| 6: Calculate $\frac{7}{8} + \frac{7}{10}$  | 16: A biased 5 sided spinner has the numbers 1, 2, 3, 4, and 5. The probability of spinning a 1 is 0.15. Work out the probability of <b>not</b> spinning a 1.   |
| 7: Convert 0.6 to a fraction   | C17: A biased 5 sided spinner has numbers 1, 2, 3, 4 and 5. The spinner is spun 75 times, with 18 of them landing on a 3. Estimate the probability that the next spin will be a 3.                                  |
| 8: Simplify $5n + 4n^2 - 8n + 2n^2$  | 18: Paul measures the sound level at different points around school, and records the result. Describe this type of data.  |
| 9: Find the value of $n^2 - n$ when $n = 4$  | 19: Alex is drawing a pictogram to show the genre of different DVDs in her house, which each picture of a DVD standing for 8 DVDs. If Alex has 20 comedy DVDs, how many pictures should she draw to represent them? |
| 10: Expand $n(4 - n)$  | 20: In a pie chart representing shares in a company, the largest shareholder has an angle of $120^\circ$ . What fraction of the company does the largest shareholder own?   |
| Mark:  | Effort:   |

Exam Question Homework - Direct and Inverse proportional relationships:

Jim's class and Rosie's class go on a trip to the zoo.  
Each pupil pays the same amount.



Jim



Rosie

What is the total cost for Rosie's class?

The labels on two types of cereal bar show the following information.

|                   | Fat per 100g | Bar weight | Fat per bar |
|-------------------|--------------|------------|-------------|
| <b>Fruity bar</b> | 17.4 g       | 62.6 g     |             |
| <b>Sports bar</b> | 10.3 g       |            | 3.4 g       |

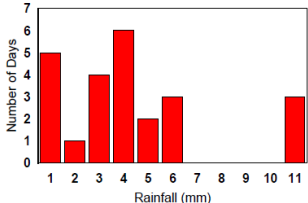
Complete the table.  
You **must** show your working.

(Total 4 marks)

The time taken to paint a room is inversely proportional to the number of people painting the room.

It takes 3 people 8 hours to paint a room.

Using this information, calculate how long it will take 4 people to paint a room.

| Homework Sheet 10   | Week Beginning 9 <sup>th</sup> November  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
|---|--|---------------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|----|---|
| 1: Which imperial unit would you use to measure the size of a nail? | 11: Factorise $p^2 + 6p + 8$   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 2: In the space below, draw an angle of $200^\circ$                 | 12: $f:p \rightarrow \frac{p^2 - 7}{8}$ . Find $f$ : 9   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 3: Work out the value of $\frac{84}{-7}$                            | C13: The force of gravity on earth is proportional to the mass of the object the force acts on. An object of 8kg has a force of 78.4 Newton. What would the force be on an object of mass 14 kg?   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 4: Work out $3.8 \times 12$   | 14: David, Egil and Frances share money in the ratio 2:7:9. Explain why Frances will always get half of any money there share.   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 5: Calculate $\frac{1}{4}$ of 74                                    | C15: The force of gravity on earth is proportional to the mass of the object the force acts on. An object of 8kg has a force of 78.4 Newtons. Find a relationship between the mass of the object in kg, $m$ , and the gravitational attraction in Newtons, $F$ .   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 6: Calculate $\frac{9}{10} - \frac{4}{15}$                          | C16: A biased 5 sided spinner has the numbers 1, 2, 3, 4, and 5. The probabilities of spinning a 1, 2, 3, and 4 are all 0.15. Work out the probability of spinning a 5.  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 7: Convert $\frac{3}{8}$ to a decimal                               | C17: Anastasia asks around and finds out that in her class, there are 3 people with shoe size 5, 5 people with shoe size 6, 9 people with shoe size 7, 10 people with shoe size 8, 6 people with shoe size 9 and 1 person with shoe size 10. A new pupil joins the class. Estimate the probability the new person will have a shoe size of 9.  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 8: Simplify $4 \times p \times p$                                   | 18: Anastasia asks around and finds out the shoe size of everyone in her class. Describe this type of data.  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 9: Find the value of $p^2 - p$ when $p = -2$                        | 19: <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p style="text-align: center;"><b>Rainfall in April</b></p>  <table border="1"> <caption>Rainfall in April Data</caption> <thead> <tr> <th>Rainfall (mm)</th> <th>Number of Days</th> </tr> </thead> <tbody> <tr><td>1</td><td>5</td></tr> <tr><td>2</td><td>1</td></tr> <tr><td>3</td><td>4</td></tr> <tr><td>4</td><td>6</td></tr> <tr><td>5</td><td>2</td></tr> <tr><td>6</td><td>3</td></tr> <tr><td>7</td><td>0</td></tr> <tr><td>8</td><td>0</td></tr> <tr><td>9</td><td>0</td></tr> <tr><td>10</td><td>0</td></tr> <tr><td>11</td><td>3</td></tr> </tbody> </table> </div> <div style="flex: 1; padding-left: 20px;"> <p>Which two amounts of rainfall happened on exactly 3 days?</p> </div> </div> | Rainfall (mm) | Number of Days | 1 | 5 | 2 | 1 | 3 | 4 | 4 | 6 | 5 | 2 | 6 | 3 | 7 | 0 | 8 | 0 | 9 | 0 | 10 | 0 | 11 | 3 |
| Rainfall (mm)   | Number of Days   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 1   | 5  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 2   | 1  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 3   | 4  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 4   | 6  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 5   | 2  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 6   | 3  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 7   | 0  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 8   | 0  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 9   | 0  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 10  | 0  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 11  | 3  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| 10: Expand $(p + 2)(p + 5)$   | 20: What fraction is represented by an angle of $108^\circ$ in a pie chart?  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |
| Mark:   | Effort:  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |

Andy and Trevor share 40 sweets in the ratio 11 : 9.

How many more sweets does Andy receive than Trevor?

.....

.....

.....

Answer .....

(Total 2 marks)

Calculator

The table shows some exchange rates.

£1 is worth 1.82  
American dollars

£1 is worth 194  
Japanese yen

Joanne buys a camera in America and pays 200 dollars.  
Jack buys a similar camera in Japan and pays 20 370 yen.

In which country is the camera cheaper and by how much?

Calculator

Paul and Kelly each buy a can of drink.



Volume        500ml  
Sugar per can   35g



Volume        330ml  
Sugar per can   28g

Paul drinks 100 ml of the Blackcurrant juice.

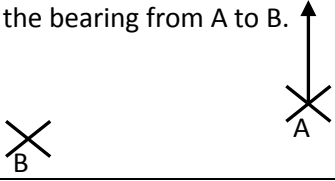
Kelly drinks 100 ml of the Fizzy orange.

Who drinks more sugar?

You **must** show your working.

Answer .....

(Total 3 marks)

|  |   |
|--|---|
| Homework Sheet 11  | Week Beginning 16 <sup>th</sup> November  |
| 1: Which metric unit would you use to measure the length of an A4 book?  | 11: Factorise $q^2 - 8q - 20$   |
| 2: Measure the bearing from A to B.<br> | 12: Make $x$ the subject of $q = 5(x + 3)$  |
| 3: Work out the value of $\sqrt{5^2 + 12^2}$   | C13: A box of tea bags costs £1.40 for 80 bags. A different brand costs £1.75 for a box of 100 bags. Which box is better value for money?   |
| 4: Work out $4.34 \div 7$  | C14: David, Egil and Frances share money in the ratio 2:7:9. David gets £25. Work out how much Egil and Frances each get.   |
| 5: Convert $8\frac{7}{11}$ to an improper fraction   | C15: A box of tea bags costs £1.40 for 80 bags. A different brand costs £1.75 for a box of 100 bags. Find a relationship between the cost in pence, $c$ , of the box and the number of bags in the box, $b$ , for both boxes. |
| 6: Calculate $2\frac{3}{4} \times 1\frac{1}{7}$  | C16: A biased 5 sided spinner has the numbers 1, 2, 3, 4, and 5. The probabilities of spinning a 1, 2 and 3 are all 0.1. The probability of spinning 4 and 5 are the same. Work out the probability of spinning a 5.          |
| 7: Convert 0.64 to a fraction.   | C17: Lauren asks around her school and finds out whether people support Leicester City. 80 people she asks do, whilst 55 don't. Estimate the probability that the next person she asks will support Leicester City.           |
| 8: Simplify $4q - 3 + r - 7q + 4r - 8$   | 18: Shinji has a top trumps card set which tells him about the maximum speed of different super cars. Describe this type of data.   |
| 9: Find the value of $3q + r$ when $q = -4$ and $r = \frac{1}{2}$  | 19: Taite draw a pictogram to show peoples favourite TV show, with each picture of a TV standing for 4 people. If she draws $3\frac{1}{2}$ pictures for the show 'Eastenders' how many people like Eastenders?                |
| 10: Expand $(q - 2)(q + 4)$  | 20: An angle of $40^\circ$ degrees in a pie chart represents 20 people. How many people are represented in the pie chart?   |
| Mark:  | Effort:   |



Exam Question Homework - Basic Calculations with Probability:

These counters are in a bag.

R

R

R

R

A

S

A counter is taken at random.

Join each event to the chance of it happening.  
One has been done for you.

The counter has A on it

The counter has a letter on it

The counter has R on it

Impossible

Unlikely

Evens

Likely

Certain

[2 marks]

Lucy is twice as likely to win as Kate.

Draw an arrow to show the probability that Lucy wins.

Kate wins

Lucy wins

0

0.1

0.2

0.3

0.4

0.5

0.6

0.7

0.8

0.9

1

[1 mark]

Draw an arrow to show the probability that Kate does **not** win.

Kate wins

Kate does **not** win

0

0.1

0.2

0.3

0.4

0.5

0.6

0.7

0.8

0.9

1

[1 mark]

Two bags, A and B, contain numbered counters.

(a) Here are the 8 counters in bag A.

1

2

2

3

4

4

4

5

A counter is chosen at random from bag A.

Write down the probability that the number on the counter is 4

[1 mark]

Answer .....


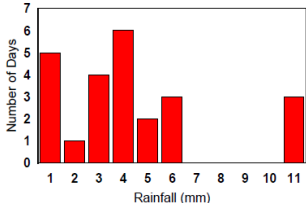
(b) A counter is chosen at random from bag B.

The table gives the probabilities of the numbers on the counters in bag B.

|                   |     |     |     |     |
|-------------------|-----|-----|-----|-----|
| Number on counter | 6   | 7   | 8   | 9   |
| Probability       | 0.2 | 0.1 | 0.4 | 0.3 |

Which bag has the greater probability of choosing an **even** number?  
You **must** show your working.

[2 marks]

|  |   |
|--|---|
| Homework Sheet 12  | Week Beginning 23 <sup>rd</sup> November  |
| 1: Which imperial unit would you use to measure the length of an A4 book?  | 11: Factorise $s^2 + 4s - 12$   |
| 2: Draw point B on a bearing of $295^\circ$ from point A.<br> | 12: $f(s) = \frac{s+3}{s-2}$ . Find the value of $s(3)$   |
| 3: You are given that $336 \div 7 = 48$ . Complete these calculations<br><br>..... $\div 48 =$ .....<br><br>..... $\times 48 =$ .....          | C13: The acceleration of an object is proportional to the force on an object. A force of 19.5 Newtons is needed to accelerate an object to $3\text{ms}^{-2}$ . What acceleration is caused by a force of 32.5 Newtons?  |
| 4: Work out $2.8 \times 9.2$   | 14: David, Egil and Frances share money in the ratio 2:7:9. Frances gets £80 more than David. Explain how you know Egil gets £80.   |
| 5: Convert $\frac{23}{4}$ to a mixed number  | C15: The acceleration of an object is proportional to the force on an object. A force of 19.5 Newtons is needed to accelerate an object to $3\text{ms}^{-2}$ . Find a relationship between the force needed, $F$ , to cause an acceleration of $a$ , for the object.  |
| 6: Calculate $4\frac{4}{5} \div 3\frac{3}{11}$   | 16: The probability of Leicester winning a football match is 0.3. The probability of Leicester losing a football match is 0.55. Explain why these probabilities don't add to 1.   |
| 7: Convert $\frac{4}{11}$ to a decimal   | C17: A die is rolled 210 times. Work out how many times you would expect the die to show 6.   |
| 8: Simplify $8 \times s \times 3 \times t \times s$  | 18: Alena records the number of minutes that she spends each day doing her homework. Describe this type of data.  |
| 9: Find the value of $4s - 5t$ when $s = \frac{1}{4}$ and $t = -1$   | 19: <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p style="text-align: center;"><b>Rainfall in April</b></p>  </div> <div style="flex: 1; padding-left: 20px;"> <p>There are 30 days in April. How many days had no rainfall?</p> </div> </div> |
| 10: Expand $(s - t)^2$   | 20: A pie chart is drawn to represent 100 people. What angle would be drawn to represent 60 of the people?  |
| Mark:  | Effort:   |

## Exam Question Homework - Bias and Expectations:

In a statistical experiment a fair, ordinary dice is rolled.

Tick a box to show the correct ending to the sentence below.

[1 mark]

When this statistical experiment is repeated you will

always get the same outcome

☐

usually get the same outcome

☐

usually get a different outcome

☐

always get a different outcome

☐

Tick a box to show the correct ending to the sentence below.

[1 mark]

An estimate of probability based on a statistical experiment is more reliable with

more trials

☐

fewer trials

☐

more time between trials

☐

less time between trials

☐

George either walks home from school or he is picked up in the car by one of his parents. The table shows the probabilities for some of these outcomes.

| Outcome     | Walks home | Picked up by father | Picked up by mother |
|-------------|------------|---------------------|---------------------|
| Probability | 0.80       | 0.06                |                     |

How many times in a week would you expect George to walk home?

(Total 2 marks)

A, B, C and D are the four possible outcomes of an experiment.

$$P(A) = 0.12$$


D is twice as likely as A.

B and C are equally likely.

Complete the table.

| Outcome     | A    | B | C | D |
|-------------|------|---|---|---|
| Probability | 0.12 |   |   |   |

(3 marks)

|  |   |
|--|---|
| Homework Sheet 13  | Week Beginning 30 <sup>th</sup> November  |
| 1: Which metric unit would you use to measure the distance between London and Paris?                             | 11: Factorise $w^2 - 8w + 16$   |
| 2: Measure the angle below.<br> | 12: Make x the subject of $w = x^2 - 2$   |
| 3: Work out $-8 \times -7$   | C13: At the current exchange rate £1 = \$1.58. A new camera costs £259.99 in the UK and \$399.99 in the USA. In which country is the camera cheaper? Explain how you decide?  |
| 4: Work out $23.6 \div 0.4$  | C14: David, Egil and Frances share money in the ratio 2:7:9. Egil gets £85 more than David. Work out how much they each get.  |
| 5: Calculate $\frac{3}{7}$ of 86   | C15: At the current exchange rate £1 = \$1.58. Find a relationship between the amount of money in £, $p$ , and the amount of money in \$, $d$ .   |
| 6: Calculate $2\frac{13}{16} + 3\frac{5}{12}$  | 16: The probability that I eat breakfast in the morning is 0.35. The probability that I drink a cup of tea in the morning is 0.95. Explain why the probability that I eat breakfast or have a cup of tea is not $0.35 + 0.95$ |
| 7: Convert 1.34 to a fraction  | C17: A biased die is rolled 30 times, with 10 of the rolls being 6. If the die is rolled 80 times, how many times would you expect it to land on a 6?   |
| 8: Simplify $8w - 2x + 4 - 3w + 8 - 3x - 12 + 5x - 4w$   | 18: John looks up on a website that tells him the 10 highest earning films of all time. Describe this type of data.   |
| 9: Find the value of $x^w$ when $x = 3$ and $w = 2$  | 19: Brian draws a pictogram to show the supermarket different people visit most regularly. He draws 12 pictures for Tesco, to represent 96 people. How many circles will represent 50 people?                                 |
| 10: Expand $(w + x)(w - x)$  | 20: A pie chart has a sector of $75^\circ$ representing 15 people. How many people are in the whole pie chart?  |
| Mark:  | Effort:   |

Exam Question Homework - Data Types and Basic Representations:

1

Merits are given to boys and girls at a primary school.  
The bar chart shows the number of merits given to four classes in one week.

= boys

= girls

| Class   | Boys | Girls | Total |
|---------|------|-------|-------|
| Class 1 | 6    | 10    | 16    |
| Class 2 | 8    | 5     | 13    |
| Class 3 | 7    | 7     | 14    |
| Class 4 | 14   | 4     | 18    |

1 (a)

How many merits were given to **girls** in Class 2?

[1 mark]

Answer .....

1 (b)

Work out the range of the number of merits given to **boys** in these four classes.

[2 marks]

.....

Answer .....

1 (c)

In Class 4, how many **more** merits were given to boys than to girls?

[1 mark]

.....

Answer .....

1 (d)

The children in Class 5 got a total of 19 merits.  
The girls got **7 more** merits than the boys.  
Show this information on the bar chart.

[3 marks]

40 people were asked how many televisions they have in their home.  
The pictogram shows the results for 0 to 3 televisions.

represents four people

|                                   | 0           | 1                                 | 2   | 3   | 4 or more   |
|-----------------------------------|-------------|-----------------------------------|---|---|---|
| Number of televisions in the home | <div></div> | <div><div></div><div></div></div> | <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> | <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> | <div><div></div><div></div></div> <div><div></div><div></div></div> |

(a)

How many of these people have exactly 2 televisions?

[1 mark]

Answer .....

(b)

How many of these people do not have a television?

[1 mark]

Answer .....

(c)

Complete the pictogram.

[2 marks]

Tom measures the shoe size of each student in her year.

Which words describes the data she collects?

Circle your answers.

Qualitative

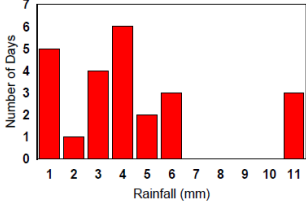
Quantitative

Categorical

Discrete

Continuous

[2 marks]

| Homework Sheet 14  | Week Beginning 7 <sup>th</sup> December   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
|--|---|---------------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|----|---|
| 1: Which imperial unit would you use to measure the distance between London and Paris? | 11: Factorise $z^2 - 49$  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 2: In the space below, draw an angle of $303^\circ$                                    | 12: $f: y \rightarrow \sqrt{18y + 4}$ . Find $f: \frac{3}{5}$   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 3: Work out the value of $\frac{12 \times 5}{(1 + 1)^2}$                               | 13: The value of an antique increases with age. When it was new, the antique costs £35. After 150 years the cost of the antique is £470. Explain why this is not a proportional relationship.   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 4: Work out $2.38 - 3.6 + 5.9$   | C14: David, Egil and Frances share money in the ratio 2:7:9. If David gets £75 more he will have the same as Egil. Work out how much they each get.   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 5: Convert $12\frac{9}{13}$ to an improper fraction                                    | C15: The number of miles travelled is proportional to the number of kilometres travelled. A commonly used conversion is 5 miles = 8km. Write a relationship between the distance travelled in miles, $m$ , and the distance travelled in kilometres, $k$ .  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 6: Calculate $6\frac{2}{9} - 4\frac{7}{12}$  | 16: A circular spinner is divided into 4 sections, labelled A, B, C and D. The angles at the centre of the four sections are $40^\circ$ , $80^\circ$ , $100^\circ$ and $140^\circ$ . Write the probabilities of the spinner landing on the four sections.   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 7: Convert $2\frac{3}{7}$ to a decimal   | C17: The spinner above is spun 120 times. Approximately how many times would you expect the spinner to land on A?   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| C8: Simplify $y \times 6 \times z \times 3 \times 2y \times 4z$                        | 18: John looks up on a website that tells him the how much the highest earning films of all time have earnt. Describe this type of data.  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 9: Find the value of $\frac{y}{z}$ when $y = -4$ and $z = -6$                          | 19: <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p style="text-align: center;"><b>Rainfall in April</b></p>  <table border="1"> <caption>Rainfall in April Data</caption> <thead> <tr> <th>Rainfall (mm)</th> <th>Number of Days</th> </tr> </thead> <tbody> <tr><td>1</td><td>5</td></tr> <tr><td>2</td><td>1</td></tr> <tr><td>3</td><td>4</td></tr> <tr><td>4</td><td>6</td></tr> <tr><td>5</td><td>2</td></tr> <tr><td>6</td><td>3</td></tr> <tr><td>11</td><td>3</td></tr> </tbody> </table> </div> <div style="flex: 1; padding-left: 20px;"> <p>How much rain fell in April altogether?</p> </div> </div> | Rainfall (mm) | Number of Days | 1 | 5 | 2 | 1 | 3 | 4 | 4 | 6 | 5 | 2 | 6 | 3 | 11 | 3 |
| Rainfall (mm)  | Number of Days  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 1  | 5   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 2  | 1   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 3  | 4   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 4  | 6   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 5  | 2   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 6  | 3   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 11   | 3   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| 10: Expand $(3y - 2)(4 - z)$   | 20: 40 people in a pie chart are represented by $70^\circ$ . How many people would be represented by $105^\circ$ ?  |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |
| Mark:  | Effort:   |               |                |   |   |   |   |   |   |   |   |   |   |   |   |    |   |

Exam Question Homework - Pie Charts and Choosing representations:

Students voted for a colour for their new uniform.  
They chose from four colours.

This pie chart shows the results from 240 Year 7 students.

Year 7

| Colour | Angle (°) |
|--------|-----------|
| Red    | 72        |
| Black  | 138       |
| Green  | 90        |
| Blue   | 180       |

What percentage of Year 7 students chose green?

Answer ..... %

The pie chart below shows the results from 240 Year 11 students.

Year 11

| Colour | Angle (°) |
|--------|-----------|
| Red    | 138       |
| Blue   | 120       |
| Green  | 57        |
| Black  | 180       |

What fraction of Year 11 students chose blue?  
Give your answer in its simplest form.

Answer .....

How many more students in Year 7 chose red than in Year 11?

Answer .....

[1 mark]

[1 mark]

[5 marks]

The pie chart represents the number of rooms in houses in one part of Manchester.

seven rooms

six rooms

four rooms

five rooms

18°

54°

168°

What fraction of these houses have seven rooms?  
Give your answer in its simplest form.

(2 marks)

The number of houses with four rooms is 940.

How many houses does the whole pie chart represent?

(3 marks)

Suggest a suitable representation for displaying the results of a survey gathered for the insurance industry about the ages of car drivers that have been involved in accidents. Justify your choice.

|       |   |   |   |   |   |   |   |   |   |    |    |    |    |    |
|-------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|
| Sheet | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Mark  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |

| Question | Topic                               | Homework 1 | Homework 2 | Homework 3 | Homework 4 | Homework 5 | Homework 6 | Homework 7 | Homework 8 | Homework 9 | Homework 10 | Homework 11 | Homework 12 | Homework 13 | Homework 14 |
|----------|-------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| 1        | Units                               |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 2        | Angles and direction                |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 3        | Operations                          |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 4        | Decimal calculations                |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 5        | Basic Fractions                     |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 6        | Fraction Operations                 |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 7        | Fractions and decimal conversion    |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 8        | Simplifying                         |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 9        | Substitution                        |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 10       | Expand brackets                     |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 11       | Factorising                         |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 12       | Functions and formulae              |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 13       | Basic Proportion                    |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 14       | Ratio problems                      |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 15       | Proportion functions                |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 16       | Probability calculations            |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 17       | Relative Frequency and Expectation. |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 18       | Data types                          |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 19       | Pictograms and Bar charts           |            |            |            |            |            |            |            |            |            |             |             |             |             |             |
| 20       | Pie Charts                          |            |            |            |            |            |            |            |            |            |             |             |             |             |             |

|                    |  |
|--------------------|--|
| Homework 2 Target  |  |
| Homework 3 Target  |  |
| Homework 4 Target  |  |
| Homework 5 Target  |  |
| Homework 5 Target  |  |
| Homework 6 Target  |  |
| Homework 7 Target  |  |
| Homework 8 Target  |  |
| Homework 9 Target  |  |
| Homework 10 Target |  |
| Homework 11 Target |  |
| Homework 12 Target |  |
| Homework 13 Target |  |
| Homework 14 Target |  |



Exam Question Holiday Homework:

Make  $x$  the subject of  $y = 4x - 3$

(Total 2 marks)

In a primary school the ratio of boys to girls is 7 : 8

For each statement write down whether it is

D

Definitely true

C

Could be true

F

False

(i)

The number of boys in the school is 49

.....

(ii)

The fraction of boys in the school is  $\frac{7}{8}$

.....

(iii)

The fraction of girls in the school is  $\frac{8}{15}$

.....

(3)

A code starts with one of the letters A, B, C or D.  
Jamie tries one of the letters at random.

What is the probability that he gets the right letter?

Answer ..... (1 mark)

Jamie gets the wrong letter.  
He tries one of the other letters at random.

What is the probability that he gets the right letter this time?

.....

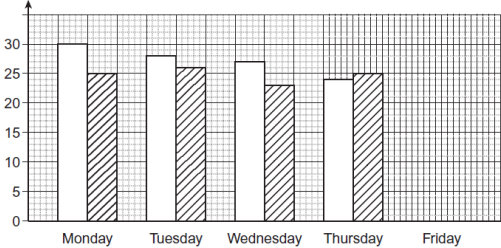
Answer ..... (1 mark)

2

The attendances of classes 10A and 10B for four days are shown.

Class 10A

Class 10B



2 (a)

How many students from 10A attended school on Tuesday?

Answer ..... (1 mark)

2 (c)

On which of the four days was the total attendance of classes 10A and 10B the highest?

.....

.....

Answer ..... (1 mark)

2 (d)

On Friday the total attendance of classes 10A and 10B was 43.  
Three more students attended in 10B than in 10A.  
Complete the bar chart for Friday.

.....

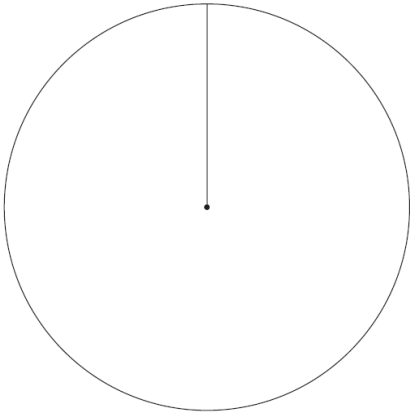
.....

.....

(3 marks)

A cinema sells 180 tickets for the 5 pm showing of a film.

| Type of ticket | Number sold |
|----------------|-------------|
| Adult          | 55          |
| Child          | 70          |
| Student        | 15          |
| Senior Citizen | 40          |



Draw and label a pie chart to represent this information.

(4 marks)