Home Learning 16.5 Date Due:.....

1 Look at each set of data and give a reason why the chosen average is suitable or not:

a 1, 3, 4, 8, 10, 11 Mean **b** 2, 2, 2, 2, 4, 6, 8 Mode

c 2, 4, 6, 8, 10, 11, 11 Median **d** 2, 2, 2, 3, 5, 6, 6 Mode

e 1, 2, 4, 6, 8, 8, 8 Median **f** 1, 12, 13, 15, 19, 19 Mean

2 Look at each set of data and decide whether the range is suitable or not, and explain your answer:

a 2, 3, 6, 8, 9, 10 **b** 1, 1, 1, 1, 20 **c** 2, 2, 4, 6, 8

d 1, 2, 5, 7, 8, 9 **e** 1, 2, 2, 2, 8, 9, 9, 20

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Home Learning 13.1 Date Due:.....

1 Simplify the following:

a $7m + 3k + 2m$ **b** $5p + q + 3p$ **c** $6t + 2d - t$ **d** $8k + 5g - k$

2 Expand the following:

a $2(3a + 4b)$ **b** $3(5t - 2k)$ **c** $6(n + 2p)$ **d** $5(2q - p)$

e $q(7 + w)$ **f** $a(5 + 2m)$ **g** $n(3y - t)$ **h** $y(2x - 3n)$

3 Expand and simplify the following:

a $4x + 3(2x + 3)$ **b** $9a - 2(4a + 5)$ **c** $17t - 3(4t - 1)$ **d** $5x + 3(2x - 5)$

e $9t - 4(2t - 2)$ **f** $17m - 3(5m - 4)$

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Home Learning 13.2 Date Due:.....

1 Solve the following equations:

a $4x = 16$ **b** $3x = 30$ **c** $2m = 18$ **d** $5n = 35$

2 Solve the following equations:

a $6 = \frac{18}{n}$ **b** $4 = \frac{24}{x}$ **c** $2 = \frac{8}{m}$ **d** $9 = \frac{27}{x}$

3 Solve the following equations:

a $4(3t + 1) = 28$ **b** $3(4m + 5) = 33$ **c** $4(5m + 3) = 72$ **d** $5(2k + 3) = 60$

e $3(3t - 5) = 12$ **f** $5(2x - 3) = 30$ **g** $4(2t - 5) = 36$ **h** $6(8 - 3x) = 12$

4 Solve the following equations:

a $2.5x + 1.7 = 7.4$ **b** $4.6x + 9.3 = 25.4$ **c** $2.6x - 5.1 = 6.6$

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Home Learning 16.4 Date Due:.....

1 The table shows the mean and range of a set of golf scores per hole for Emily and Lorna:

	Emily	Lorna
Mean	4.2	6.1
Range	4	3

Compare the mean and range and explain what they tell you.

2 The table shows the median and range of weekly sales of two magazines:

Teen Mag	*Only 13*
Median	12 000	14 000
Range	1000	3500

Compare the median and range and explain what they tell you.

3 The table shows the mode and range of goals scored by two hockey teams:

	Rotherfield	Shefham
Mode	3	5
Range	1	4

Compare the mode and range and explain what they tell you.

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Home Learning 13.3 Date Due:.....

1 Grandma is seven times as old as her grandson is now. If their ages add up to 96, how old is Grandma?

2 If n is an even number:

i Write, as simply as possible, an expression for the sum of the next four consecutive even numbers.

ii If the sum of these four numbers is 84, find n.

3 The sum of two consecutive odd numbers is 152; find the numbers.

4 Mark weighs 7 kg more than his brother. Their total weight is 71 kg. How much does Mark weigh?

5 Phoebe's Auntie Ann is three times as old as Phoebe. If the sum of their ages is 52, find their ages.

6 I think of a number, add 8 to it, double the answer, subtract 10 and I end up with 16.

i If the number I first thought of was n, write down an equation that involves n and 16.

i Solve the equation to find the number I first thought of.

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Home Learning 13.4 Date Due:.....

1 Find the gradient of the straight line that joins the following pairs of coordinates:

a (1, 4) and (2, 8) **b** (1, 8) and (3, 0) **c** (1, 9) and (3, 3)

2 Find the gradient and the y-axis intercept of each of the following equations:

a $y = 5x + 3$ **b** $y = -3x + 2$ **c** $y = 3x$ **d** $y = -4x - 7$

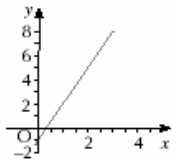
3 Write equations for lines in the form $y = mx + c$, where:

a m = 4 and c = 3 **b** m = 5 and c = –2 **c** m = –3 and c = 7 **d** m = –5 and c = –2

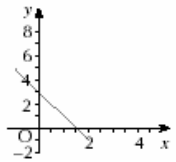
e m = 6 and c = 0 **f** m = 0 and c = 9

4 Find the gradient, the y-intercept and the equation of each linear graph shown below:

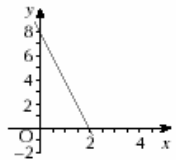
a



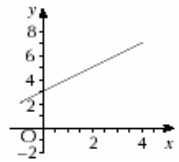
b



c



d



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Home Learning 16.3 Date Due:.....

1 For each frequency table, construct a frequency diagram.

a Bus journey times:

Time, T (minutes)	Frequency
$0 < T \leq 20$	12
$20 < T \leq 40$	15
$40 < T \leq 60$	9
$60 < T \leq 80$	4

b Average temperatures of 37 European Regions:

Average temperature, T (°C)	Frequency
$0 < T \leq 5$	4
$5 < T \leq 10$	8
$10 < T \leq 15$	12
$15 < T \leq 20$	9
$20 < T \leq 25$	4

c Heights of 50 buildings:

Heights, h (metres)	Frequency
$0 < h \leq 10$	25
$10 < h \leq 20$	15
$20 < h \leq 30$	10

Home Learning 16.2 Date Due:.....

1 Find the mean of 16, 19, 21, 22, 25. Use 20 as the assumed mean.

2 Find the mean of 42, 49, 51, 56, 59. Use 50 as the assumed mean.

3 Fine the mean of 22.3, 28.1, 34.2. Use 30 as the assumed mean.

4 Write down four numbers with a mode of 10 and a range of 6.

5 The mean of a set of numbers is 10 and the range is 5. The numbers are now doubled.

a What is the new mean? **b** What is the new range?

6 The mean of a set of numbers is 8.4 and the range is 11.1. The numbers are now decreased by 5.

a What is the new mean? **b** What is the new range?

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Home Learning 13.5 Date Due:.....

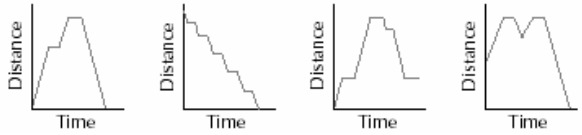
1 An express parcel delivery agency charges £5 for any delivery up to a mile, then another £4 for each mile after that up to 4 miles. For journeys over 4 miles they charge an extra £1 per mile over the 4.

a How much is charged for the following journeys:

i half a mile **ii** 1 mile **iii** 2 miles **iv** 4 miles **v** 7 miles **vi** 12 miles?

Draw a step graph to show the charges for journeys up to 12 miles.

2 Look at each of the following graphs and write a short story to go with each graph.



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Home Learning 16.1 Date Due:.....

1 Complete a frequency table for the following temperatures, T (°C). Use class intervals of $0 < T \leq 10$, $10 < T \leq 20$, $20 < T \leq 30$ and $30 < T \leq 40$.

12	17	32	30	10	22	26	8	16	5
14	33	24	19	6	30	25	40	2	18

2 Complete a frequency table for the ages (years) of a group of people. Use class intervals of $20 \leq \text{Age} < 25$, $25 \leq \text{Age} < 30$, $30 \leq \text{Age} < 35$ and $35 \leq \text{Age} < 40$.

24	28	25	36	30	37	33	22	27	39
22	29	34	21	31	30	29	21	32	35

3 Complete a frequency table for the distances d (kilometres) that pupils live from school. Use class intervals of $0 < d \leq 1$, $1 < d \leq 2$, $2 < d \leq 3$, $3 < d \leq 4$ and $4 < d \leq 5$.

0.1	3.2	4.7	0.8	0.7	1.4	2.5
2.8	1.7	3.3	0.2	0.3	1.0	3.0

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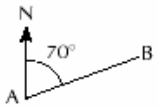
Home Learning 15.7 Date Due:.....

1 Write down each of the following compass bearings as three-figure bearings:

a north **b** east **c** north-west **d** south-east

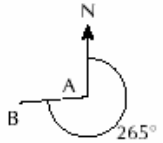
2 Write down the three-figure bearing of B from A for each of the following:

a

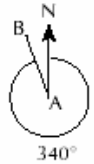


b

c



d



3 Draw a rough sketch to show each of the bearings below (mark the angle on each sketch):

a From a ship P, the bearing of a harbour Q is 070°.

b From a helicopter S, the bearing of a landing pad T is 100°.

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Home Learning 13.6 Date Due:.....

1 Rewrite each of the following formulae as indicated:

a $A = DK$

Make K the subject of the formula.

b $T = 3(n + m)$

Make m the subject of the formula.

c $F = K(2 + T)$

Make T the subject of the formula.

d $V = lbh$

Make b the subject of the formula.

e $Q = 4g - 7$

Make g the subject of the formula.

2 $d = 8p - 3$

a Find d when $p = 11$.

b Make p the subject of the formula.

c Find p when $d = 53$.

3 $T = m + 3k$

a Find T when $m = 6$ and $k = 5$.

b Make k the subject of the formula.

c Find k when $T = 23$ and $m = 5$.

4 $y = 6x - t$

a Find y when $x = 3$ and $t = 8$.

b Make x the subject of the formula.

c Find x when $y = 21$ and $t = 3$.

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Home Learning 15.5 Date Due:.....

Construct the $\triangle XYZ$ with XY = 7.4 cm, XZ = 6.2 cm and YZ = 4.8 cm.
Construct an equilateral triangle with sides of length 4 cm

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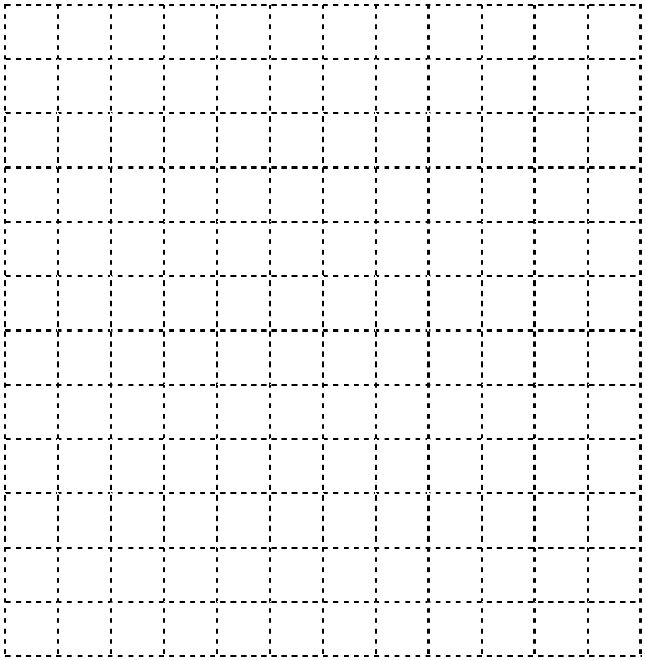

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Home Learning 14.1 Date Due:.....

1 Each of these measurements is given to the nearest centimetre. Write down the lowest possible measurement for each one.

a 7 cm **b** 15 cm **c** 45 cm **d** 105 cm

2 A rectangle has length 4 cm and width 3 cm. Each measurement is to the nearest centimetre. What is the smallest possible perimeter?

3 Find two consecutive numbers for which the product is 756.

4 A map has a scale of 1 cm to 4 km. The distance between two places on the map is 2.5 cm. What is the actual distance between the two places?

5 Which is the greater length, 3 feet or 1 metre? Explain your answer.

6 Which is the greater, 9 pints or 5 litres? Explain your answer.

7 Which is the greater mass, 4 kg or 9 pounds? Explain your answer.

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Home Learning 14.2 Date Due:.....

1 The sum of two numbers is 27 and the difference is 5. What are the two numbers?

2 The sum of two numbers is 41 and the difference is 7. What are the numbers?

3 Two parcels weigh 12 kg altogether. The heavier parcel weighs 3 kg more than the lighter parcel. How much does each parcel weigh?

4 Two pieces of wood are made from a plank 6 m long. One piece is 50 cm shorter than the other piece. How long is each piece?

5 I think of a number, double it and add four to give an answer of 26:

a Write down an equation to represent this information. **b** What is the number?

6 I think of a number, square it and add seven to give an answer of 43:

a Write down an equation to represent this information. **b** What is the number?

7 I think of a number, double it and subtract two. The answer is the same as the number plus seven:

a Write down an equation to represent this information. **b** What is the number?

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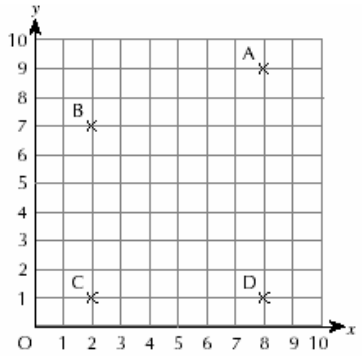
Home Learning 15.4 Date Due:.....

1 Copy the grid shown and plot the points A, B, C and D.

a Write down the coordinates of the points A, B, C and D.

b Using the grid to help, write down the coordinates of the mid-point of each of the following line segments:
i AD
ii BC
iii CD
iv AB



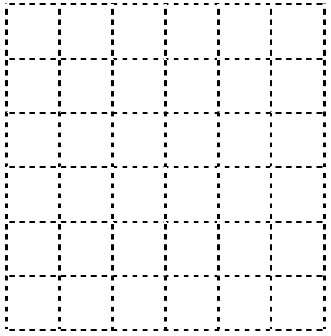
2 On a grid draw the x- and y-axes from -5 to 5:

a Plot the points P(1, 3), Q(4, –1), R(1, –5) and S(–2, –1) and join them to make a quadrilateral.

b What is the special name given to the quadrilateral?

c Write down the coordinates of the mid-point of each of the following lines: **i** PR **ii** QS

d Explain your answer to part **c**.



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Home Learning 15.3 Date Due:.....

1 The lines below are drawn using a scale 1 cm to 4 m. Write down the length each line represents.

a ——— (3 cm)

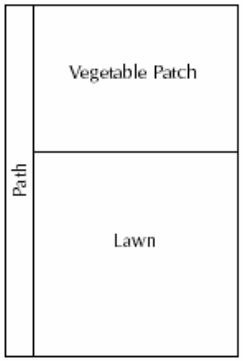
b ——————— (7 cm)

c ———— (4.5 cm)

d ————— (5.4 cm)

e ——————————— (8.7 cm)

2 The diagram shown is a scale drawing of Mr Peters' garden:



a Find the actual dimensions of the garden.

b Find the actual dimensions of the lawn.

c Find the actual dimensions of the vegetable patch.

d Find the actual area of the path.

Scale: 1 cm to 2 m

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Home Learning 14.3 Date Due:.....

1 Copy and complete the following number problems, filling in the missing digits:

a
$$\begin{array}{r} \square 2\square \\ +\ \square 3 \\ \hline 3\,1\,6 \end{array}$$

b
$$\begin{array}{r} \square 3\square \\ -\ \square 4 \\ \hline 7\,1\,9 \end{array}$$

c
$$\begin{array}{r} \square\ 9 \\ \times\ 1\square \\ \hline 2\,2\,8 \end{array}$$

d $3\square^2 = 11\square 6$

2 Give an example to show that the sum of two odd numbers is always even.

3 Give an example to show that the sum of three consecutive whole numbers is a multiple of 3.

4 Find the three factors of 25.

5 Find the four factors of 15.

6 Which is the better value for money:

a 5 pies for £3 or 6 pies for £3.50?

b 12 pencils for £1.44 or 10 pencils for £1.18?

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Home Learning 14.4 Date Due:.....

1 A family spends £30 at the cinema on tickets and £5 on refreshments. What proportion of the spending is on refreshments?

2 A bus travels at 12 miles per hour:

a How far will it travel in 15 minutes? **b** How far will it travel in 20 minutes?

c How far will it travel in 35 minutes? **d** How far will it travel in 1 hour 20 minutes?

3 Five burgers cost £3.50. What will 15 burgers cost?

4 Three plants cost £18. What will four plants cost?

5 10 pens cost £12. What will seven pens cost?

6 1 kg is approximately equal to 2.2 pounds:

a How many pounds are equal to 4 kg? **b** How many kilograms are equal to 11 pounds?

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Home Learning 14.5 Date Due:.....

1 Simplify the ratios:

a 8 : 4	**b** 5 : 15	**c** 14 : 7	**d** 12 : 9
e 15 : 5	**f** 18 : 12	**g** 3 : 12	**h** 24 g : 18 g
i 4 cm : 16 cm	**j** £10 : £7.50	**k** 33 m : 3 m	**l** £1 : 50p
m 10 kg : 4000 g	**n** 5 m : 1000 mm	**o** 1 hour : 45 minutes	

2 **a** Divide 24 m in the ratio 1 : 3 **b** Divide 400 g in the ratio 3 : 1

c Divide £36 in the ratio 5 : 4 **d** Divide 150 cm in the ratio 2 : 3

e Divide 60p in the ratio 3 : 2 : 1 **f** Divide 21 000 tonnes in the ratio 1 : 2 : 4.

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