# Strathaven Academy

# STRATHAVEN

## Level 3 – Unit 1

# Homework

- Whole Numbers
- Symmetry
- Decimals
- Statistics

### Whole Numbers

- 1. There were 9749 Hibs Supporters and 6436 Hearts supporters at a local derby match.
  - a) How many supporters were there altogether?
  - b) How many more Hibs than Hearts supporters were there?
- By the end of 2013, my car had travelled 24781 miles.
   During 2014 I drove a further 9803 miles.
   How much had my car travelled altogether by the end of 2014?
- 3. My salary this year is £28954 which is £2349 higher than last year. What was my salary last year?
- 4. A palette holds 1895 tins of soup. How many tins are there in 8 palettes?
- 5. Nine people won £52389 in the lottery. If it is shared equally amongst them, how much will each receive?
- 6. Find the value of  $6 \times 4 \times 276$ .
- 7. Tennis balls are packed into boxes of 6. If there are 2000 balls
  - a) how many boxes can be filled?
  - b) how many tennis balls are left over?
- 8. Calculate a) 4107 b) 7612 × 48
  - <u>×85</u>

### **Whole Numbers**



9. Find:-	a) 324 × 10	b) 84000 ÷ 100	c) 56 × 1000
	d) 452 × 100	e) 761 × 1000	f) 62900000 ÷ 100
10. Find:-	a) 32 × 30	b) 145 × 2000	c) 605 × 600
	d) 8600 ÷ 20	e) 40000 ÷ 800	f) 70200000 ÷ 6000



A machine makes 8600 chocolate bars an hour. How many does it make in 30 hours?

The machine is updated and now makes 270000 in 30 hours. How many more bars does the machine make **per hour**?

- 12. A recycling truck follows the same route every day.
  - From the depot to a superstore
    12 miles away, then back to the depot.
  - It then travels from the depot to another shopping centre 13 miles away and back.





One day the **mileometer** on the truck reads 23670 miles. What would the reading be 30 days later?

- 13. Find **a** 8+4×3 **b** 6-20÷4.
- 14. Re-write the following and insert brackets to make each of the equations correct :-

**a** 9 - 5 × 3 = 12 **b** 12 × 9 - 6 = 36 **c** 6 + 4 × 10 - 10 = 0.

### **Symmetry**

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1. How many lines of symmetry do these shapes have ?



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2. Copy the figure shown onto squared paper and complete it so that the dotted line is an axis of symmetry.



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3. Which, if any, of these shapes have half turn symmetry ?

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**4**. State what kind of turn symmetry  $(\frac{1}{2}, \frac{1}{3}, ...)$  these shapes have.



### **Symmetry**

5. Copy the shape below onto squared paper and rotate it 180° around the dot.



6. Make a copy of this shape in the centre of a page and surround it completely to show that this shape will "tile the plane".



7. Which of the following shapes would tile the plane?

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### **Decimals**

- 1. Round to 1 decimal place: a) 3.87 b) 0.972
- 2. Round to 2 decimal places: a) 0.4565 b) 2.996
- 3. Round to 3 decimal places: a) 11.0955 b) 0.9998
- 4. Round each number to 1 figure accuracy and give an approximate value for the following:
- b) 3656 × 196 a) 199 × 19 c) 39 × 409 d) 8705 ÷ 33 e) 416876 ÷3781 f) 4489 ÷ 8091 **5.** a)  $3.74 \times 10$ b)  $0.0075 \times 1000$ c)  $70.309 \times 100$ d)  $1.86 \times 1000$ 6. a)  $26 \cdot 3 \div 10$ b)  $7 \cdot 9 \div 100$ **c)** 132 ÷1000 **d**) 52÷100 7. a)  $12 \cdot 4 \times 20$ b)  $0.0641 \times 5000$ c)  $22.9 \times 600$ d)  $0.35 \times 2000$ 8. a)  $65.1 \div 30$ b) C) d)  $1.5 \div 500$  $4218 \div 600$  $75 \div 5000$
- 9. The volume of a bottle of perfume is 0.02 litres. What is the volume of 400 bottles?
- 10. 5000 staples weigh 150g. Calculate the weight of one staple.
- 11. Two tables are placed together to form a larger one.The first table is 67.4 cm long and the second table is 56.85 cm long.What is the total length?
- 12. A puzzle costs £7.90. How much will 6 puzzles cost?
- 13. A cup of coffee costs £1.85.
  - a) How much will I have to pay for 7 cups?
  - b) How much change will I get from £20?
- 14. 8 staplers cost £26. How much does each stapler cost?

### **Bodmas**

1. a) 5 × 4 – 8	b) 6 × 3 – 5	c) 13 – 2 × 4	d) $10 + 2 \times 7$
2. a) 1 + 6 × 5	b) 20 – 10 ÷ 5	c) $19 + 3 \times 2$	d) 28 – 14 ÷ 2
3. a) 3 × (10−3)	b) (2 + 4) × 8	c) $20 \div (12 - 8)$	d) (5 + 4) × 3
4. a) ( 10 – 5) × ( 4 + 7)	b) (15	+ 10) ÷ (7 – 2)	
5. a) 28 – 10 + 12	b) 40 +	$12 \times 2 - 7$	
6. a) 30 ÷ 5 + 4 × 8	b) 9×4	4 – 16 ÷ 2	
7. a) $4 + 70 \div 10 \times (1 + 5)$	5) b) $7 + (6)$	5 × 5 + 3)	
8. a) $12 \times 2 + (27 \div 3 - 4)$	b) 3 + 6	$(5+4) \div 3 - 7$	
9. a) 9 - 5 ÷ (8 – 3) × 2 +	6 b) 150 ÷	$(6+3\times 8)-5$	
10. a) 7.18 – 2.1 × 3	b) 5.04	$+ 8.4 \div 7$	

### **Statistics - Averages**

- 1. Find the range of these numbers :- 94, 36, 65, 32, 95, 29, 47, 22, 25.
- 2. Determine the mode for this currency list :-

£3, £4, £3, £5, £4, £3, £3, £4, £7, £4, £7, £4, £7.

- 3. Find the median temperature :- 2°C, -2°C, 1°C, 6°C, -5°C, 7°C, 12°C, 14°C, 8°C, -9°C.
- 4. Calculate the mean amount :-

£0.50, £0.60, £0.80, £0.50, £1.00, £0.70, £1.10, £0.40.



Mary and Joe's father promised to buy them a new game controller if **both** of them scored an average (**mean**) of 85% <u>or more</u> in their first five maths tests. Mary scored 68%, 97%, 95%, 83% and 87% in her tests. Joe got 92%, 84%, 72%, 86% and 81% in his. Should they get the new controller ? (*Explain*)!

6. Shown is the money earned by two boys washing cars one evening.

Alan	£2	£4	£2	£2	£2	£5	£3	£2	£6
Dave	£1	£3	£3	£4	£1	£2	£3	£3	£4



- Write down the modal amount earned by each boy.
- **b** Give a reason why it is unfair to compare their earnings by using the mode.
- 7. Here are the prices quoted by ten computer shops to repair a broken PC.



£45 £60 £70 £75 £90 £78 £72 £155 £80 £45
a Find the median and the mean price quoted.
b Why should the mode not be used in a case like this ?

8. The mean cost of five pairs of trainers is £52.
Four of the pairs are priced £55, £48, £54 and £49.
What does the 5th pair cost ?



### **Statistics – Graphs and Tables**

- A survey was carried out at a garden centre over one week, when shoppers were asked to name their favourite garden bird.
  - a How many chose the Blackbird ?
  - b How many more chose Sparrow than Chaffinch ?
  - c How many people were asked altogether ?



2. The line graph shows the number of emails sent by students Arif (A) and Sonya (S).





- a On which day did they send the exact same number of Emails?
- b On day 6, who sent more Emails ? How many more ?
- c Overall, who sent more Emails ? Explain !
- 3. In a supermarket survey shoppers were asked to name their favourite quick meal . A sample of their responses is listed.

Pasta	Pizza	Pasta	Pasta	Sausages
Fish	Pizza	Pizza	Chicken	Fish
Pizza	Pasta	Fish	Fish	Chicken
Pasta	Pasta	Sausages	Pizza	Pizza
Pizza	Fish	Chicken	Chicken	Pizza

Copy and complete this Frequency Table.

MEAL	Tally Marks	FREQUENCY
Pizza		
Pasta		
Sausages		
Fish		
Chicken		

### **Statistics – Graphs and Tables**

4. The Leisure Centre surveyed a group of pupil's favourite activities. The results are listed.

Football	Football	Swimming	Football
Swimming	Gymnastics	Swimming	Football
Gymnastics	Swimming	Football	Basketball
Football	Swimming	Basketball	Basketball
Swimming	Football	Swimming	Football

Show this information in a Frequency Table.

Use the information in the Frequency Table to draw a Bar Graph.

5. The table below shows the time taken to heat a beaker of water using a Bunsen Burner.

Time (minutes)	Temperature (°C)
0	10
1	20
2	30
3	50
4	60
5	60
6	70
7	80
8	80
9	90
10	100

Plot the information from the table on a Line Graph.

# Strathaven Academy Level 3 – Unit 1

### **Revise and Review**

- Whole Numbers
- Symmetry
- Decimals
- Statistics

This section provides further examples that may be used to revise prior to the Unit 1 Test or for consolidation and review as required on completion of the unit.

### Whole Numbers

- 1. Write out the number 2 040 800 in words.
- 2. Write these numbers using figures :- (a) one hundred thousand and thirty (b) 10.5 million.
- 3. Try these questions mentally :-
  - (a) 18 × 10 (b) 45 × 100 (c) 1000 × 432 (d) 23 × 20 × 30
  - (e) 780 ÷ 20 (f) 23 × 30 (g) 821 × 40 (h) 230 000 ÷ 1000
  - (i) 39 000 ÷ 300 (j) 4900 ÷ 700 (k) 4 963 000 ÷ 700
  - (k) A fishing trip company stocks 320 jars of worms. Each jar contains 30 worms. How many worms in total does the company stock?
  - (I) On a fish farm 23 400 fish are kept in 30 tanks.
     If each tank has the same number of fish, how many fish are in each tank?

### Show all working for question 4 to 6.

- 4. (a) At the cup final the attendance was : Rovers 12 829 supporters, United 13 482 supporters.
  - (i) What was the total attendance? (ii) How many more United supporters were there?
  - (b) Seven of the United team were being paid £8435 each. How much is this in total?
  - (c) Six Rovers players were being paid a total of £45810.

If they were paid equal amounts, how much were they paid each ?

- 5. (a) Boy band BLoo are buying a new tour bus which costs £183850.
   Round this number to the nearest :- (i) £100 (ii) £1000 (iii) £10000
  - (b) The band are paying over 48 months.

Round each number to 1 figure accuracy and give an estimate for each monthly payment.

- (c) The bus can seat 36 passengers.
   How many trips will the bus have to make to transport all 226 tour crew?
- John has a CD collection.
   When he puts them in piles of two, three or four he has one left over.
   He has none left when he puts them in piles of seven.

What is the least number of records John can have?











### **Symmetry**

1. Write down how many lines of symmetry are in each of these shapes :-





2. Copy each of the following shapes neatly, and complete each one such that the dotted line is a line of symmetry.







3. Which, if any, of these shapes have half-turn symmetry?





- 4. (a) For each shape in question 3, say what kind of turn symmetry it has,  $(\frac{1}{2}, \frac{1}{3}, \text{etc})$ .
  - (b) State the order of each shape from question 3.
- 5. Copy each shape and give each a half turn around the dot.



### <u>Decimals</u>



How long was the third strip.

- 6. Use a calculator and then round to one decimal place.
  - (a) A barrel holds  $140.63 \ell$  of water. How much would 17 barrels hold?
  - (b) Thirteen railway cars have total length 164.2 metres. What is the length of one
  - (c) A field with area 1875 metres is fenced into four equal section. What is the area of each section ?



1. Calculate the range and the mean of :-

(a) 12, 11, 14, 14, 16, 21 and 10 (b) 8.8, 8.7, 7.9, 8, 9.1, 8.6 and 7.7.

2. In a swimming competetion the following times were recorded :-

18.7 secs, 22.4 secs, 19.7 secs, 20.1 secs, 20.3 secs, 18.9 secs, 21.3 secs.

How many swimmers were faster the mean time ?

- Mr. Evans the orchard manager kept a record of the weight of apples picked each day (in kg).
  - (a) Organise the data into a frequency table.
  - (b) How many days were more than 24kg picked ?
- The last six months of Alana and Betty's mobile phone bills are shown on the line graph.
  - (a) How much did Alana pay in :-
    - (i) December (ii) March ?
  - (b) Between which two consecutive months was Betty's bill the same ?
  - (c) Alana and Betty's parents found the bills and went ballistic.

Which month were the bills found ? Explain.

(d) Calculate the mean bill for each girl.



24

22

20



27

19

### Statistics 2

- 1. Calculate the **mean** for each set of data :-
  - (a) 3, 8, 4, 2, 10, 7, 8
    (c) 1.3, 2.6, 3.2, 4.1, 5, 4.8, 4, 1.9, 0.1, 2
- Find the median for each set of data : (a) 1, 3, 5, 6, 8, 11, 14
  - (c) 4, 1, 14, 12, 6, 7, 11, 13, 9
- 3. Find the **mode** for each set of data :-
  - (a) 1, 1, 2, 3, 5, 8, 13, 21, 34, 55
  - (c) 1.7, 2.3, 1.6, 3, 2.3, 3.7, 2.9,
- 4. Find the range for each set of data in question 3(a) to (c).
- 5. Find the mean, median, mode and range of each set of data :-
  - (a) 10, 14, 15, 15, 16, 19, 22, 23, 27, 29, 30
  - (b) 46, 31, 66, 73, 83, 43, 16, 66
  - (c) All the prime numbers between 30 and 50.



6.

The mean weight of 4 boxes is 300 kg. Three of the boxes each weigh 85 kg. What is the weight of the fourth box ?

7. The mean cost for 12 people to hire a bus was to be £15. Unfortunately, some people did not turn up for the bus trip. Each of those who went on the trip ended up paying £22.50. How many must have turned up ?



- (b) 50, 60, 52, 58, 54, 56
- (d) the first ten prime numbers.
- (b) 16, 22, 23, 25, 31, 40, 61, 63
- (d) 5, 8, 21, 12, 5, 16, 33, 12, 15, 9.
- (b) 3, 2, 1, 8, 4, 5, 9, 2, 7, 6, 0,
  (d) A, C, F, G, H, Y, T, E, D, D, G, H, G.

#### **Answers**

### Whole Numbers

```
1. a Two million, forty thousand, eight hundred
2.a 100030 b 10500000
3.a 180
           ь 4500
                     c 432 000
                                 d 13800
                    g 32840 h 230
 e 39
           f 690
           j 7
                     k 7090 1 9600
 i 130
 m 780
4. a (i) 26311 (ii) 653
 b £59045 c £7635
5. a (i) £183 900 (ii) £184 000 (iii) £180 000
 b £4000 c 7 trips
6.49
```

### **Symmetry**

1.a	1	b	0		с	1	d	10
2. ch	eck diagram	s						
3. a/t	0 & c							
4.a	$\frac{1}{6}, \frac{1}{4}, \frac{1}{2},$	<u>1</u> 7						
b	6, 4, 2, 7							
5 6	5.		check	diagra	ams			
7. a/t	o & d							

### **Decimals**

1 a	tenths	b	hundredths	3.a	0.8	b	5.8	с	99.5	d	1.7
1. u	whole	d	thousands	4.a	27.2	b	1.33	с	13.15	d	0.852
2. a	7.7	b	2.92	e	6.1	f	782.1	g	324.7	h	864
				5.0	83 m						
				6.a	2390·7 l	b	12·6 m	с	468·8 m		

**Statistics 2** 

### Statistics 1

1.a	14 (11)	b 8·4	4 (1.4)	
2.4				
3.a	Weight	t Tally	Freq	
	19	I.	1	
	20	111	3	
	21	111	3	
	22	-₩1	6	
	23	- <del>    </del>	6	
	24	111	3	
	25	1	1	
	26	1	1	
	27	I.	1	
b	3			
4.a	(i) £40	(ii) £	15	
b	April and	May		

c February

d ALANA £40 BETTY £40

1.	۵	6	b	55	С	2.9	d	12·9
2.	۵	6	b	28	с	9	d	12
3.	a	1	b	2	с	2.3	d	G
4.	a	54	b	9	с	2.1		
5.	a b c	20 53 39·8	19 56 41	15 66 N	20 67 ONE	16		
6.	۵	945	kg		7.	8		