



## S3 September Assessment Revision

### Fractions

1. Find the following:

a.  $\frac{3}{4} - \frac{1}{7}$

b.  $1\frac{3}{7} - \frac{4}{5}$

c.  $\frac{5}{9} \times \frac{4}{3}$

d.  $2\frac{1}{2} - 1\frac{5}{6}$

e.  $\frac{4}{9} \div \frac{2}{3}$

f.  $\frac{3}{7} + \frac{1}{2} + \frac{5}{8}$

2. A bread recipe needs  $\frac{4}{5}$  kg of wholemeal flour and  $\frac{3}{4}$  kg of white flour. How much flour is needed altogether?

### Equations

1. Solve the following:

a.  $3x + 9 = 65 - x$

b.  $8 + 5n = 22 + 3n$

c.  $9k + 8 = 2k + 176$

d.  $5h - 25 = 89 - h$

2. In a school of 845 pupils, there are 29 less girls than boys.

Let there be  $x$  girls.

a. Write down an equation which represents this.

b. Solve the equation to find the number of girls and the number of boys in the school.

### Statistics

1. The following information represents the weight of people, in kg, at a training camp:

71, 69, 60, 56, 72, 66, 64, 64, 68, 74, 68, 85, 68, 77,  
59, 64, 68, 79, 75, 78, 70, 68, 68, 66, 69, 68



- a. Display the information in an ordered stem and leaf diagram.
  - b. Find the median.
2. The following information below represents the ages of people on a bus:

29, 15, 8, 12, 8, 21, 34, 20, 11, 16, 28, 8, 5, 14

- a. Display the information in an ordered stem and leaf diagram.
  - b. Find
    - i. Range
    - ii. Mode
    - iii. Median
3. The results of a sports survey are shown in the table below.

Sport	Number
Swimming	12
Football	5
Athletics	20
Tennis	3
Track Cycling	15
Hockey	5

Calculate the size of angle each section would represent in a pie chart.

### Probability

1. There are 5 blue, 3 green, 8 red and 6 black skittles.

Find

- a. The probability of selecting a black skittle at random
- b. 5 red skittles are removed, what is the probability of selecting 1 of the remaining red skittles.

2. There are 4 boys and 14 girls in a classroom. A child is chosen at random and asked to roll a die, numbered 1 to 6.

Which is more likely:

- a. The child is female?
- b. The number rolled is a 3?

Explain your answer.



### Standard Form

1. Write the following numbers in scientific notation:

a. 5,680,000

b. 0.00007736

c. 430,900

2. Write the following in full:

a.  $4.2 \times 10^4$

b.  $7.32 \times 10^6$

c.  $4.8 \times 10^{-5}$

### Percentages

1. In June 2008 Anthony bought a Honda Shadow motorbike for \$8,240 and he was told it would depreciate at a rate of 4.45% per year.

If Craig sells the bike in June 2014, how much should he expect to make from the sale of the motorbike?

2. A music shop which had gone into administration decided to hold a closing down sale offering 75% off all items.

A Fender Telecaster '52 reissue was offered for £349.75. How much did it originally cost?

3. A car is valued at £32,300.

If the car depreciates in value by 12.4% per annum, calculate how many full years it will take for the value of the car to half.

4. A flight to Australia with British Airways was priced at £975 for December of 2013, whilst a flight to Thailand with British Airways was priced at £790 for December of 2013.

In the future it is expected that the prices for flights to Australia will depreciate by 5.4% per annum, whilst prices to Thailand are expected to appreciate by 4.62%. If these rates stay constant, in what year will it cost more to fly to Thailand?



5. Brodie invests £6,270 in a high interest bank account for 5 years.

If the interest rate is 7.28%, calculate the compound interest earned. Give your answer correct to the nearest thousand.

6. Alice buys a t-shirt for £24.99 and sells it for £4.98.  
Express her loss as a percentage of the original price.

7. In the Swatch end of season sale a line of watches are reduced by 18%.  
If the sale price of a watch is £21.85, what was its price before the sale?

8. Keith buys a hat for £15.50 and sells it for £25.  
Express his profit as a percentage of the original price.

### Circle

1. A circle has a radius of 3.7m. Calculate the area of the circle.

2. The circumference of a circle is 520m. Calculate the diameter.

3. Calculate the area of a semi-circle with a diameter of 19m.

4. Sector COB has an angle of  $63^\circ$  at the centre with a radius of 8.2cm.

Calculate the area of this sector.

5. A sector of a circle has a radius of 13.2m and an angle of  $181^\circ$  at its centre.

Calculate a. The sector's area.

b. (i) The arc length

(ii) The perimeter of the sector.

6. A pizza is cut into 5 slices.

The original diameter of the pizza was 13 inches.

What is the arc length of each slice?



### Proportion

1. Seven chocolate bars cost £1.40. How much do 10 chocolate bars cost?
2. Six peaches cost 84p. How much will nine peaches cost?
3. Five people lay a pipeline in 5 days. How long would one person take?
4. A box of emergency rations can feed 12 people for 6 days, How long would the box of rations last for 18 people?
5. Nine washing-up liquid containers hold  $2700\text{cm}^3$ . How much do five of these containers hold?

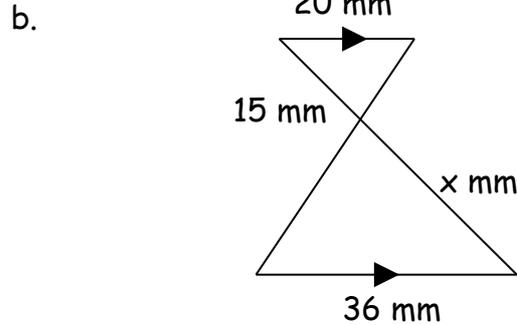
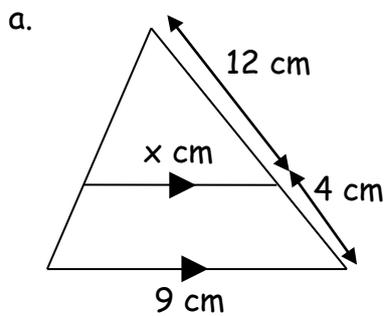
### Linear Relationships

1. Find the gradient of the line joining
  - a. (2, 4) and (3, 8)
  - b. (-3, -7) and (-12, 5)
2. Find the equation of the straight line which passes through the following points:
  - a. (3, 4) and (0, -2)
  - b. (0, 5) and (3, -4)
3. Find both the gradient and y-intercept of the following straight lines:
  - a.  $5y - 3x = 4$
  - b.  $2y + 7x - 1 = 0$
  - c.  $9x - 4y + 3 = 0$
4. A straight line is defined by the equation  $3y - 4x = 7$ . Find the line's gradient and the coordinates of the point where it crosses the y-axis.



## Similarity

1. Calculate  $x$  in each of the following diagrams.



2. A farmer has two fields that are mathematically similar. The larger field has a length of 25m and the smaller is 15m long.  
If the area of the smaller field is  $117\text{m}^2$ , what is the area of the larger?
3. The two vases shown below are mathematically similar.



The larger vase has a volume of  $35,250\text{cm}^3$ .  
Find the volume of the smaller vase.