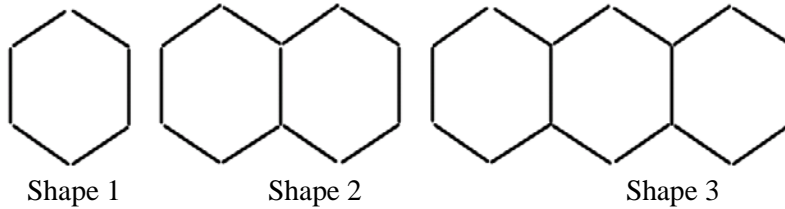


S2 Core – Test 2 Revision

1. Patterns and Relationships

- Write down an expression for the n^{th} term of the sequences whose first four terms are (a) 2, 5, 8, 11 (b) 11, 19, 27, 35
- The sequence of shapes shown below is made with matchsticks.



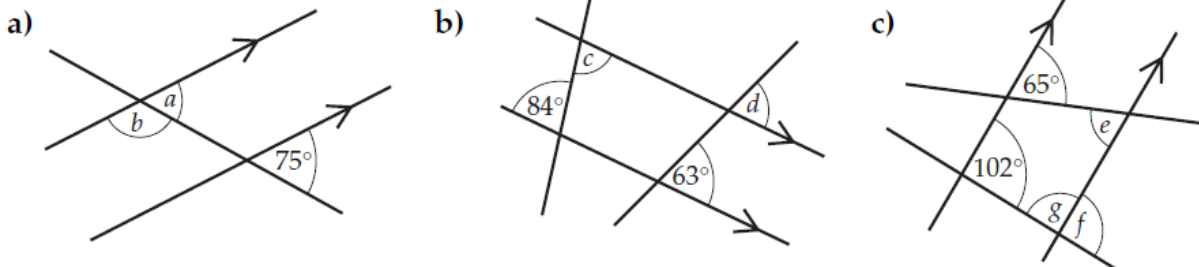
The table below shows the number of matchsticks in each shape.

Shape number (S)	1	2	3	4	5		9
Number of matchsticks (M)	6	11	16				

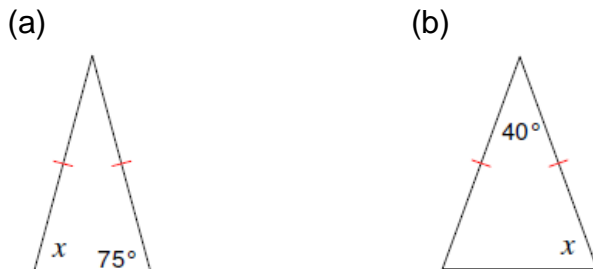
- Complete the table above.
- Write down a formula for calculating the number of matchsticks (M) when you know the shape number (S).
- What is the shape number that uses 76 matchsticks?

2. Angles

- Calculate the sizes of the angles marked a, b, c, d, e, f and g in the diagrams below.

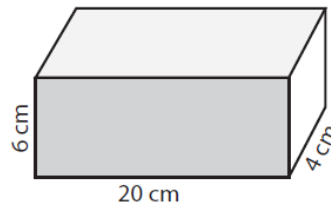


- Calculate the value of x in each of the isosceles triangles shown below.



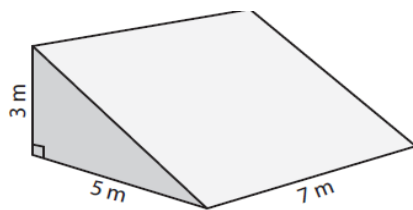
3. Volume

1. Calculate the volume of this cuboid.

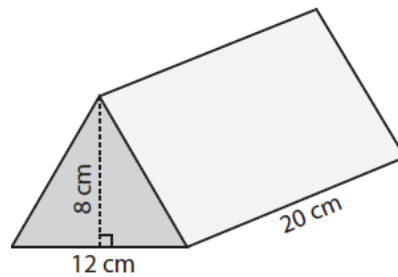


2. Calculate the volume of these triangular prisms.

(a)



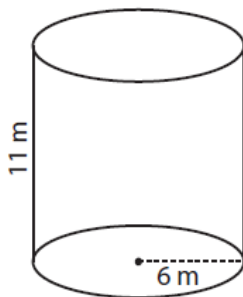
(b)



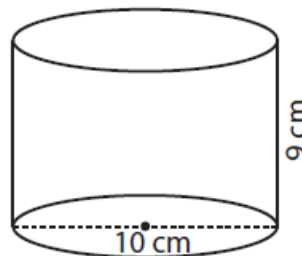
3. Calculate the volume of these cylinders.

Give each answer correct to the nearest whole number

(a)



(b)



4. Convert
- (a) 4 litres into cm^3
 - (b) 3200 cm^3 into litres
 - (c) $2\,000\,000 \text{ cm}^3$ into m^3
 - (d) 0.05 m^3 into cm^3

4. Equations

Solve these equations

1. $8x - 2 = 3x + 18$

2. $5y + 10 = 2y - 11$

3. $7(a + 2) - 19 = 30$

4. $2(3p - 1) + 9 = 31$

5. Averages

1. Calculate the (a) median (b) mode (c) range of this set of numbers.

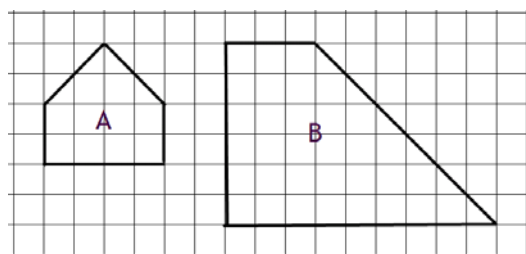
16, 20, 19, 13, 19, 17, 12, 19, 16

2. Calculate the mean, median and mode of the marks shown below.

English – 57	Maths – 79	French – 60	Technical – 58
History – 58	Music – 74	Physics – 68	Chemistry – 66

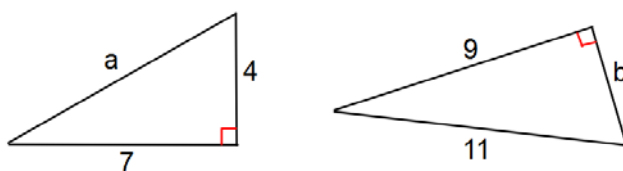
6. Similarity

1. Draw an enlargement of shape A using a scale factor of $\frac{5}{2}$.
2. Draw a reduction of shape B using a scale factor of $\frac{2}{3}$.



7. Pythagoras' Theorem

1. Calculate the values of a and b , correct to one decimal place.



2. Plot the points A(1,2) and B(9,8) on a coordinate diagram.
Hence **calculate** the length of the line AB.

8. Ratio and Proportion

1. Jane and Ryan share £132 in the ratio 5:6. Work out Jane's share.
2. A tennis club has 112 members. The ratio of female to male members is 3:4.
How many male members are there?
3. Five bars of chocolate weigh 570 grams.
Find the weight of eight bars of the same chocolate.
4. When Peter exchanged £20 for Danish Krone he received 190 Krone.
How many Krone would he have received in exchange for £24.

ANSWERS

1. Patterns and Relationships

1. (a) $3n - 1$ (b) $8n + 3$

2. (a)

S	1	2	3	4	5		9
M	6	11	16	21	26		46

(b) $M = 5S + 1$ (c) 15

2. Angles

1. $a = 75^\circ$ $b = 105^\circ$ $c = 84^\circ$ $d = 63^\circ$ $e = 65^\circ$ $f = 102^\circ$ $g = 78^\circ$

2. (a) 30° (b) 70°

3. Volume

1. 480 cm^3 2.(a) 52.5 m^3 (b) 960 cm^3 3.(a) 1243 m^3 (b) 707 cm^3

4.(a) 4000 cm^3 (b) 3· litres (c) 2 m^3 (d) $50\,000 \text{ cm}^3$

4. Equations

1. $x = 4$ 2. $y = -7$ 3. $a = 5$ 4. $p = 4$

5. Averages

1. (a) 17 (b) 19 (b) 8 2. mean = 65, median = 76.5, mode = 58

6. Similarity

1. Ask your teacher to check your answers.

7. Pythagoras' theorem

1. $a = 8.1$ $b = 6.3$ 2. 10

8. Ratio and Proportion

1. £60 2. 64 3. 912 g 4. 228 Krone