

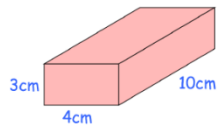
S2 Block 5 Revision

Topic	I can	Got it	Almost	Not Yet
Volume	Calculate volumes by counting cubes			
	Calculate the volume of a cuboid using the formula			
	Manipulate the volume formula to calculate the length of a missing edge in a cuboid			
	Calculate liquid volumes			
	Apply my knowledge of volume to solve practical problems			
Time	Tell time in 12h and 24hours and convert (basic revision)			
	calculate time intervals from timetables and programme guides			
	use minutes and seconds when appropriate			
	calculate distance using a formula			
	calculate speed using a formula			
	calculate time using a formula			
	choose what formula to use in order to calculate distance, time or speed.			
Pattern	I can recognise and extend pictorial patterns.			
	I can describe and extend simple number patterns.			
	I am familiar with well-known named number patterns.			
	I can extend the set of numbers generated by a given one-step rule and determine a formula for a given sequence, using appropriate notation.			
	I can extend the set of numbers generated by a given two-step rule and determine a formula for a given sequence (), using appropriate notation.			
Bearings and Scale Drawings	I can use a scale to calculate real distances from a scale drawing.			
	I can make a scale drawing accurately using a ruler and protractor.			
	I can use compass points to describe directions.			
	I can describe a journey using 3 figure bearings and illustrate in a diagram.			
	I can enlarge and reduce a shape considering scale factor.			

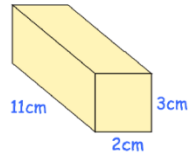
Volume

Calculate the volume of the **cuboids** (a,b,c) and **cubes** (d,e,f) below

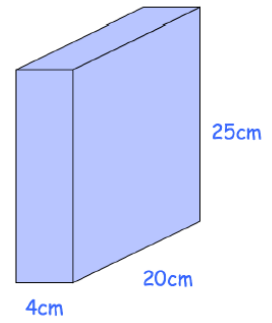
a)



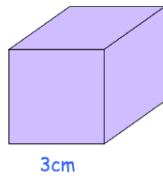
b)



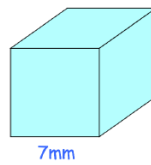
c)



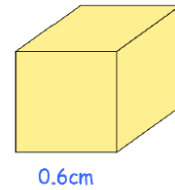
d)



e)

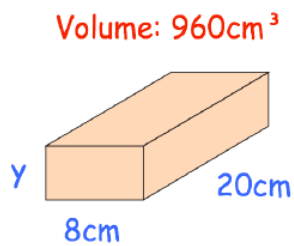


f)

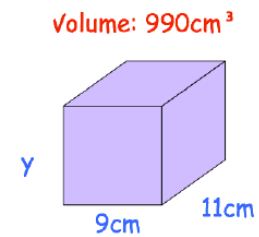


2. Find the length of line given the volume.

a)



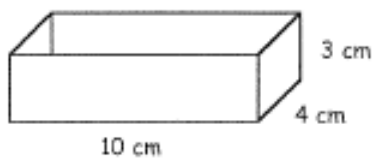
b)



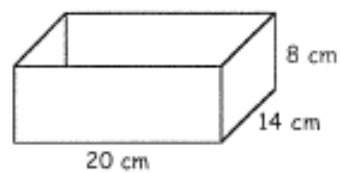
3.

Calculate the volume of each (cm^3) and write how many millilitres each will hold when full.

(a)



(b)



4.

Change each of the following to litres :-

(a) 4000 ml

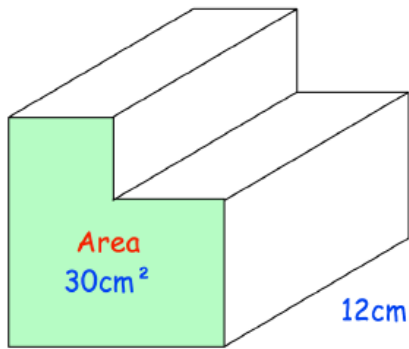
(b) 250 ml

(c) 300 000 ml

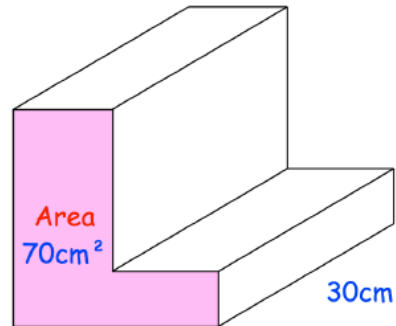
(d) 80 ml.

5. Work out the volume of each of the prisms below.

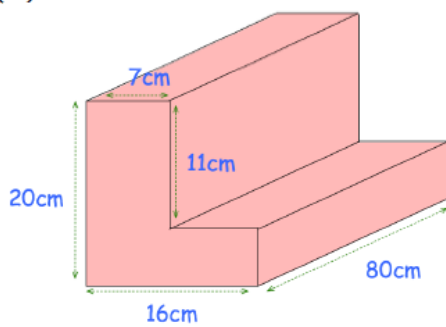
(a)



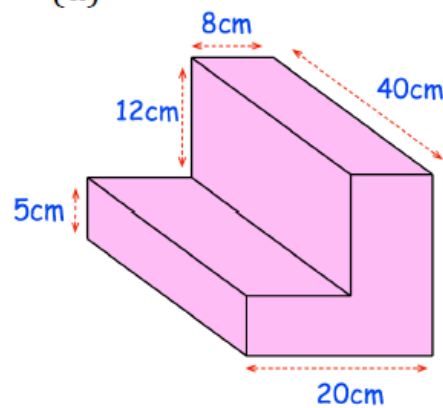
(b)



(c)



(d)

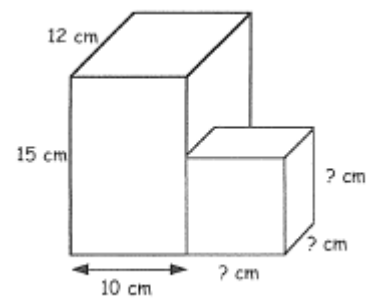


6.

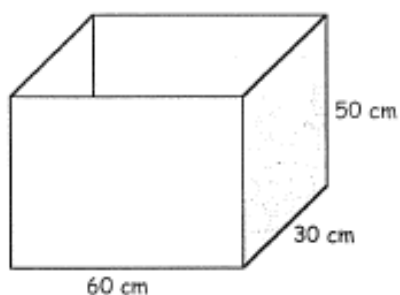
This shape consists of a cube and a cuboid.

The total volume of the shape is 2312 cm^3

Determine the length of each edge of the cube.



7.



An empty aquarium has dimensions as shown.

The tank must be at least **three quarters** full of water for the fish to survive.

What is the minimum volume of water that must be poured into the tank?

(Answer in litres)

TIME

1.

Change the following to 24 hour times :-

- (a) 8-30 am (b) 1-50 pm (c) 4-20 pm (d) 9-01 pm
(e) 6-10 am (f) 9-45 pm (g) 11-12 pm (h) 12-10 pm

2.

Change the following to 12 hour times :-

- (a) 0440 (b) 1610 (c) 2205 (d) 1910
(e) 1130 (f) 0010 (g) 1255 (h) 1010

3.

How long is it from :-

- (a) 3-05 pm to 5-20 pm (b) 5-15 am to 8-55 am (c) 6-30 pm to 8-05 pm
(d) 9-50 pm to 11-15 pm (e) 1430 to 1945 (f) 0950 to 1605
(g) 1442 to 2020 (h) Quarter to six in the morning until five past nine at night ?

4 Here is part of a timetable for a bus.

Southville	09 18	10 38	12 05
Leek	09 28	10 48	-----
Milton	09 41	11 01	-----
Newtown	09 49	11 09	-----
Red Island	09 55	11 15	12 36
Sandville	10 13	11 33	-----
Bakerstown	10 31	11 51	13 00

A bus leaves Southville at 10 38

- a) At what time should the bus arrive at Newton
b) How long will the journey take?

James arrives at the Milton bus stop at 0929. He waits for the next bus to Red Island.

- c) i) How many minutes should he wait?
ii) At what time should James arrive at Red Island?

Sally wants to travel from Southville to Bakerstown.

The 12 05 is an express bus.

d) How many minutes shorter is the journey if she takes the express bus?

5. In a Formula 1 trial the following times were recorded:

Jensen 54:62 s Cooltad 54.09 secs Chewmaker 54.1secs
Hall 54.3 secs

List the drivers in order, pole position,(winner) first.

4th Level Extension Speed Distance Time

Do only if you have been taught this in class

1. A bus travels 222 miles in 6 hours.
What was the average speed of the bus?



2. Thomas drives 130 miles at an average speed of 40 mph.
How long does the journey take Thomas?

3. A jumbo jet flies at 484 mph for 4 hours 30 minutes.
How far does the jet travel?



4. Greg and Kevin both travel between two towns that are 90 miles apart.
Greg drives and it takes him 1 hour 30 minutes.
Kevin cycles and it takes him 7 hours 30 minutes.
Work out the difference between their average speeds?

5. Harry catches the train from Belfast to Dublin at 4pm.
The average speed of the train is 70mph and the distance from Belfast to Dublin is 105 miles.
What time does Harry arrive in Dublin?

6. The distance from Sunderland to Wigan is 150 miles.
Mollie leaves Sunderland in her car at 07:50.
Her average speed on the journey is 60mph.
What time does she arrive in Wigan?

7.
i. Last Sunday, Chelsea left home at Noon and cycled 20 kilometres to her office.
She arrived at 1:20 pm and spent 10 minutes collecting the papers she had forgotten.
She then cycled home and arrived at 2 pm.

(a) Show all the given information on a distance-time graph.

(b) Calculate the speed of her journey :- (i) to the office (ii) home.

Pattern

Question 1

(a) Copy and complete this table, showing the number of legs on the spiders .

No. of spiders (S)	1	2	3	4	5	6
No. of legs (L)	8	?	?	?	?	?



(b) Copy and complete :- "the total number of legs = ? x the number of spiders".

(c) Write the formula using symbols connecting L and S .

(d) Use this "rule" to find the number of legs on 13 spiders.

(e) How many legs on 21 spiders ?

Question 2

A rectangular table seats 6 people, two tables seat 10, three tables seat



(a) Copy and complete the table.

No. of tables (T)	1	2	3	4	5	6
No. of people (P)	6	?	?	?	?	?

(b) Write a formula using symbols. ($P = \dots \times T + \dots$)

(c) Use the formula to find how many people can sit at 12 tables.

Question 3

This table shows the cost of hiring a motor cycle for several days.

No. of Days hired (D)	1	2	3	4	5	6
Cost in £'s (C)	12	20	28	?	?	?



(a) How much will it cost to hire a motor cycle for (i) 6 days (ii) 1 week ?

(b) How much extra does it cost for each additional day of hire ?

(c) Write down the formula for determining the cost of hiring the motor cycle.

$$C = ? \times D + ?$$

(d) How much will it cost to hire a motor cycle for 10 days ?

(e) Mrs Able paid £116 to hire a motor cycle. For how many days had she hired it ?

Question 4 You may wish to make a table to help with these questions

These patterns are made from sticks

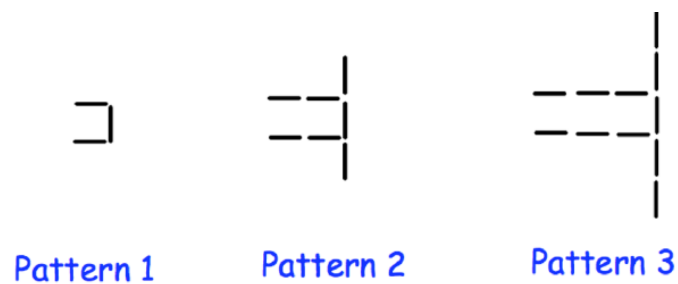


- (a) Draw pattern 4
- (b) Draw pattern 5
- (c) How many sticks will there be in pattern 6?
- (d) How many sticks will there be in pattern 10?
- (e) Which pattern will use 31 sticks?

Theo says that he has made a pattern with exactly 100 sticks.

- (f) Explain why Theo must be wrong.

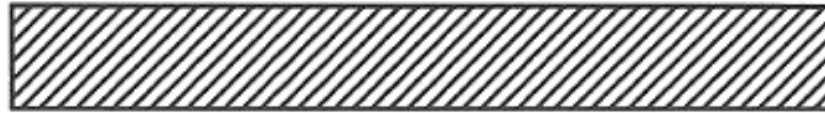
Question 5



- (a) Write an expression, in terms of n , for the number of sticks in pattern n
- (b) How many sticks will there be in pattern 220?
- (c) Which pattern number will use exactly 139 sticks?

Bearings and Scale Drawings

1. This red carpet for a movie premier has been drawn using a scale of 1 cm = 3 m.

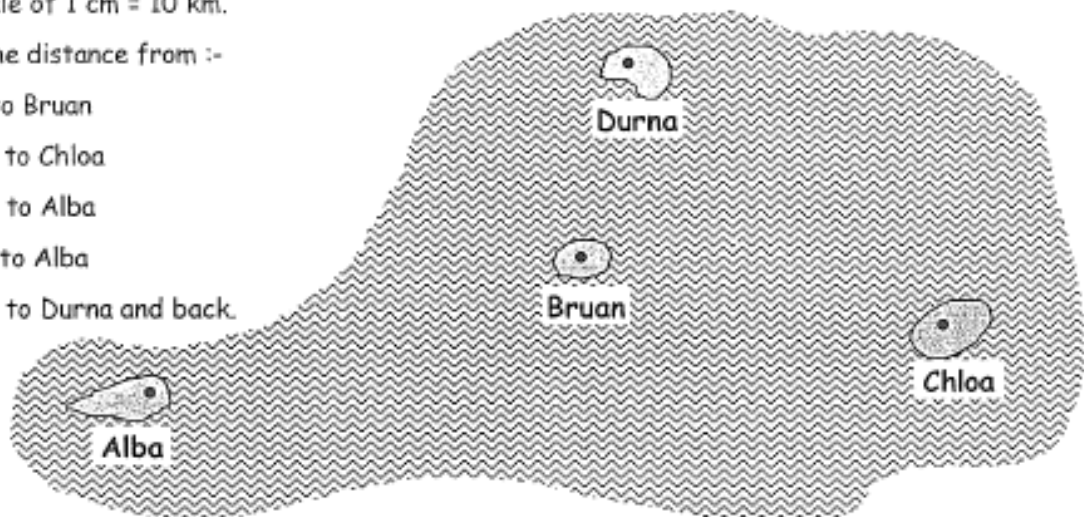


- (a) Calculate the real width of the carpet in metres.
- (b) Calculate the real length of the carpet.

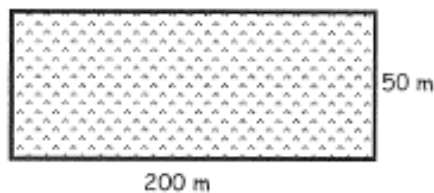
2. The map shows a group of islands drawn using a scale of 1 cm = 10 km.

Calculate the distance from :-

- (a) Alba to Bruan
- (b) Bruan to Chloa
- (c) Durna to Alba
- (d) Chloa to Alba
- (e) Bruan to Durna and back.



3. Shown is a large rectangular field. Make a scale drawing using a scale of 1 cm = 20 m.

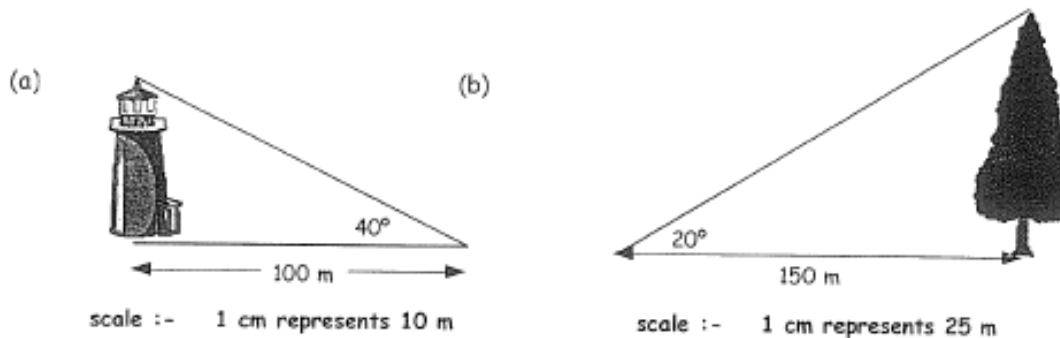


4.. You will need a protactor for the question

For each of the following :-

(i) Make a scale drawing using the given scale.

(ii) Calculate the real height of the given object.



5.

(a) Bill was facing South East. He made a $\frac{1}{4}$ turn anti-clockwise.

In which direction is he now facing ?

(b) Jane was walking North West and turned 180° .

In which direction is Jane now walking ?

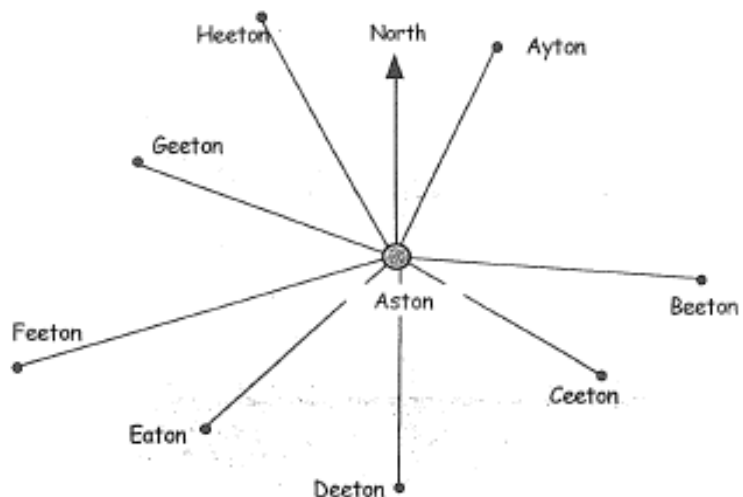
(c) An aeroplane is flying North East.
The plane turns 135° anti-clockwise.

In which direction is the plane now flying ?



6.

Use a protractor to measure and write down the 3 figure bearing of each of these towns from Aston.



7.

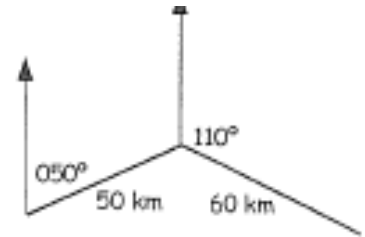
A boat leaves port and travels 50 km on a bearing of 050° . At this point the boat changes course to a bearing of 110° and sails for 60 km.

The boat then develops engine trouble and the captain decides to sail directly back to port.

He estimates the boat could sail for 75 km before the engine fails completely.

Will the boat make it back to port before engine failure ?

(Hint : make a scale drawing of the journey).



8.

A ship leaves port and sails on a bearing of 060° . It develops engine trouble and must return to port for repairs. State the bearing the navigator will use to return to the port?

9.

A flight from Glasgow to London starts on a bearing of 270° and flies for 5km. The pilot then makes a turn onto a bearing of 000° and flies for a further 12km.

- Make an accurate scale drawing of the flight path.
- Measure the bearing from the airport to the plane's new position.
- Measure the distance the plane is from the airport on your scale drawing.
- Use your drawing to calculate the actual distance the plane is from the airport.

10

Scott is going hill walking. He plans his journey on a map with a scale of 1:100000. His route on the map totals 10cm. How far will he actually walk on his trip?

11.

Susan is making a map of her local area. She measures the actual distance between her house and her local shop. If the distance is 6km, what distance will this be on her map if she uses a scale of 1:300000?

Answers

Volume:

1. 120cm³ b) 66 cm³ c) 2000 cm³ d) 27 cm³ e) 0.216 cm³
2. 6cm b) 10cm
3. 120 cm³ 2240 cm³ 120ml 2240 ml
4. a) 4L b) 0.25L c) 300L d) 0.08L
5. a) 360cm³ b) 2100cm³ c) 17680cm³ d) 7840cm³
6. 8cm
7. 67.5L

Time

- 1 a) 0830 b)1450 c) 1620 d) 21 01
e) 0610 f) 21 45 g) 23.12 h) 12 10
2. a) 4.40am b) 4.10pm c) 10.05 pm d) 5.10pm
e) 11.30 am f) 12.10am g) 12.55pm h)10.10 am
3. a) 2hrs 15min b) 3hrs 40min c) 1hr 35min d) 1 hr 25mins
e) 5hrs 15 min f) 6 hr 15mins g) 5hrs 38mins h) 15hr 20mins
4. a) 1109 b) 31mins c) 12mins ii) 0955 d) 18 mins shorter
5. Cooltard, Chewmaker, Hall , Jensen

SDT

1. 37mph
2. 3hours 15mins
3. 2178miles
4. 48mph
5. 5.30pm
6. 10.40am
7. Graph
8. 15km/h b) 40km/h

Pattern

1. a Spiders 1 2 3 4 5 6
 Legs 8 16 24 32 40 48
 b 8 times c $L = 8S$ d 104 e 168
2. -
 a Tables 1 2 3 4 5 6
 People 6 10 14 18 22 26
 b $P = 4T + 2$ c 50
3. a i £52 ii £60
 b £8
 c $C = 8D + 4$
 d £84
 e 14 days
4. a) drawings
 b) drawing
 c) 13
 d) 21
 e) 15th
 f) no. of sticks has to be odd number.
5.

Pattern	1	2	3	n
Sticks	3	7	11	$4n - 1$

 a) No of sticks in pattern $n = 4n - 1$
 b) Sticks = $4 \times 220 - 1 = 879$
 c) $N = 35$

Bearings Your answer s may differ depending on the way the sheet may have been printed. If you are not sure ask the teacher to look at your drawings.

1. Scale 1cm = 3m 11cm ---33m 1.3cm-----3.9m
 2. a) 6cm -----60km b) 5cm -----50km c) 7.6cm-----76 km
 d) 10.5cm-----105km e) $2.6\text{cm} + 2.6\text{cm} = 5.2\text{cm} = 5.2\text{km}$

3. Drawing showing length = 10cm and breadth = 2.5cm
 4. Scale drawings

5. a) NE b) SE c) S
6. a) 25° b) 93° c) 120° d) 180° e) 226°
f) 254° g) 290° h) 330° Can be 2 degrees out

7. Scale drawing: 9.4cm -----94km No journey back is 94km so the engine will fail
8. 240°
9. Scale drawing angle approx. 337°
10. 10km
11. 6km