Name: Maths Group: Tutor Set:

Homework Booklet
KS3 Levels 3-8

Unit 14 – Volume and
Surface Area

Remember to use the back of a page if you need more working out space.

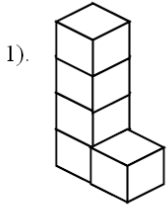Complete this table indicating the homework you have been set and when it is due by.

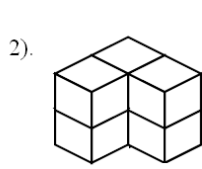| Date	Homework	Due By	Handed In

Please take care of the booklet as you will be required to make a donation to replace it if lost or damaged beyond use.
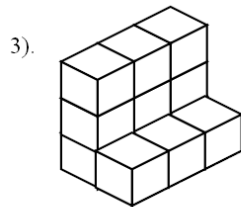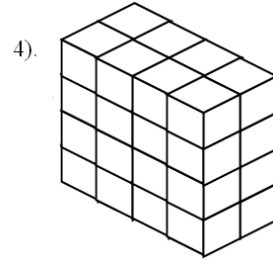
U14 – Volume and Surface Area
Volume
Calculator Allowed

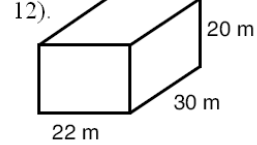1) Each cube measures 1cm³. Find the <u>Volume</u> of the following shapes.

1).

2).
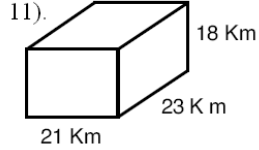
3).

4).

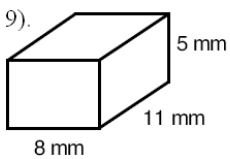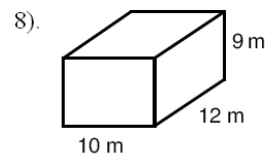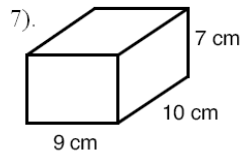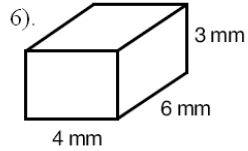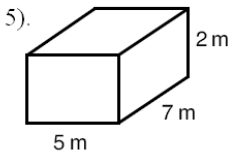_____   _____   _____   _____

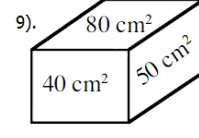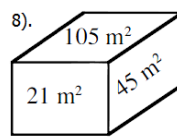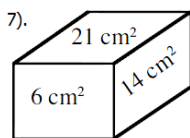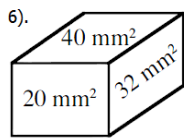2) Find the volume of each cuboid.   **Volume = Length x Width x Height**

5).
2 m
7 m
5 m

6).
3 mm
6 mm
4 mm

7).
7 cm
10 cm
9 cm

8).
9 m
12 m
10 m

9).
5 mm
11 mm
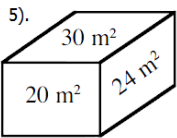8 mm

10).
12 mm
20 mm
15 mm

11).
18 Km
23 K m
21 Km

12).
20 m
30 m
22 m
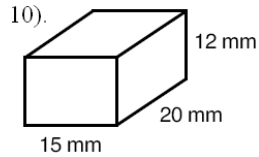
3). A cuboid fish tank has a base 50cm x 90cm (Width by Length). If the water is filled to a depth of 40cm find:
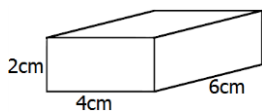
   a) the volume of the water in cm³
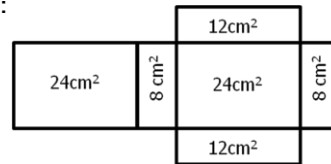
   b) the volume of the water in litres.

U14 – Volume and Surface Area
Surface Area
Calculator Allowed

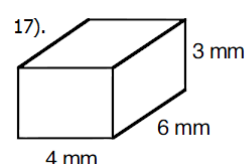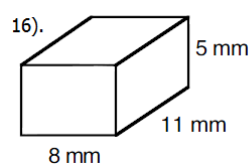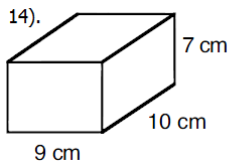Calculate the surface area of each one.

5). 30 m² 20 m² 24 m²

6). 40 mm² 20 mm² 32 mm²

7). 21 cm² 6 cm² 14 cm²

8). 105 m² 21 m² 45 m²

9). 80 cm² 40 cm² 50 cm²

The net for this cuboid 2cm 4cm 6cm looks like this:

So the surface area of the cuboid = 88cm²

12cm²
24cm² 8 cm² 24cm² 8 cm²
12cm²

For each of the following cuboids calculate the surface area.

10). 2 cm 4 cm 3 cm

11). 3 cm 5 cm 4 cm

12). 2 m 7 m 5 m

13). 5 Km 6 Km 5 Km

14). 7 cm 10 cm 9 cm

15). 9 m 12 m 10 m

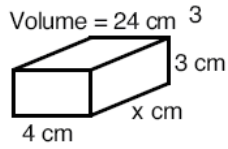16). 5 mm 11 mm 8 mm

17). 3 mm 6 mm 4 mm
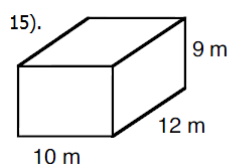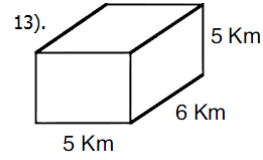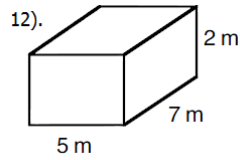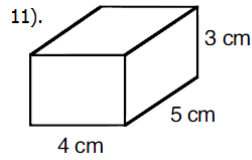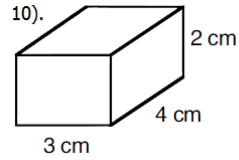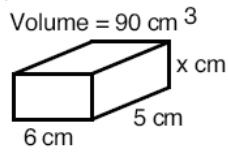
U14 – Volume and Surface Area
Volume
Calculator Allowed

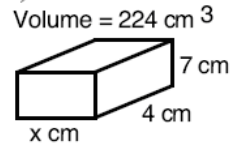The volume of each cuboid is given. Use it to find the length of each missing side.
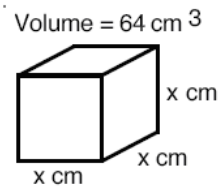
9).

Volume = 24 cm ^{3}

3 cm
x cm
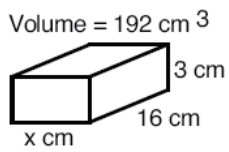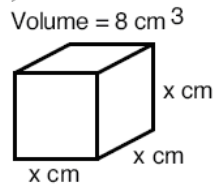4 cm

10).

Volume = 90 cm ^{3}

x cm
5 cm
6 cm

11).

Volume = 224 cm ^{3}

7 cm
4 cm
x cm

12).

Volume = 64 cm ^{3}

x cm
x cm
x cm

13).

Volume = 192 cm ^{3}

3 cm
16 cm
x cm

14).

Volume = 8 cm ^{3}

x cm
x cm
x cm

15).

Volume = 400 m ^{3}

x m
8 m
10 m

16).

Volume = 125 m ^{3}
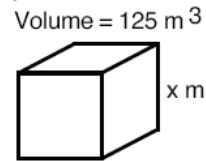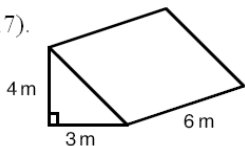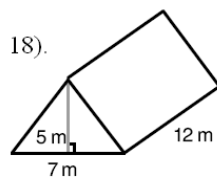
x m
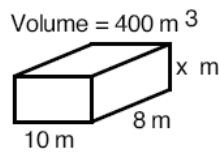
Find the <u>Volume</u> of the following triangular prisms (don't forget your units)

17).

4 m
3 m
6 m

18).

5 m
7 m
12 m

19).

2 m
4.3 m
6.5 m

20).

6 m
4.2 m
10 m

4
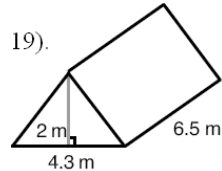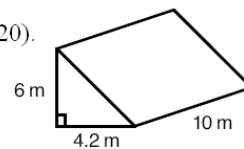
Find the <u>missing side</u> of the following triangluar prisms.

21). Volume = 60 mm³
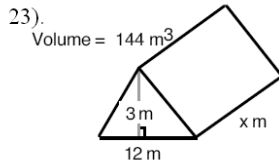
4 mm

6 mm   x mm

22). Volume = 360 cm³

8 cm

x cm   15 cm

23). Volume = 144 m³

3 m   x m

12 m

24). Volume = 495 m³

x m   10 m

9 m
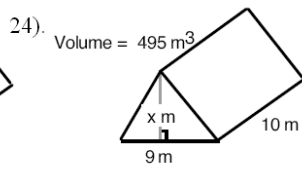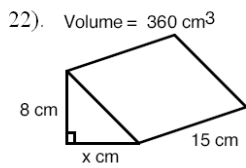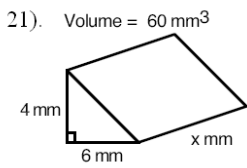
Volume of a Prism = Area of cross section x length

25).

2 cm

5 cm

6 cm   7 cm

26).

3 m

4.7 m

2.4 m

27).

6 cm

4 cm

5 cm   3 cm

28).

2.4 m

4.6m

3 m

29).

Area =
22 m²

6 m

30).

12 cm

20 cm

31).

4.2 m

5 m

32).

Area =
16.4 m²

3.7 m

33).

20 mm

30 mm

5
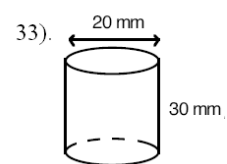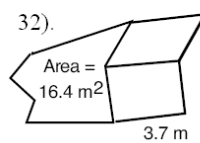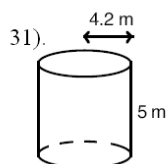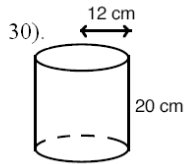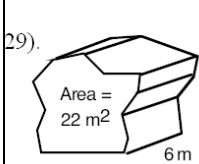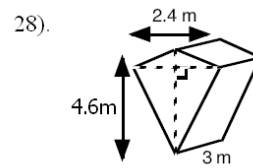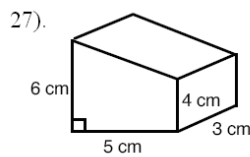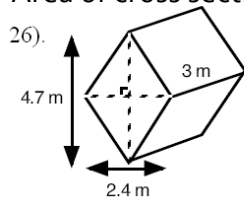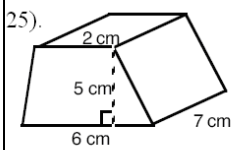
U14 – Volume and Surface Area
Volume and Surface Area
Calculator Allowed

1. Calculate the volume of these prisms
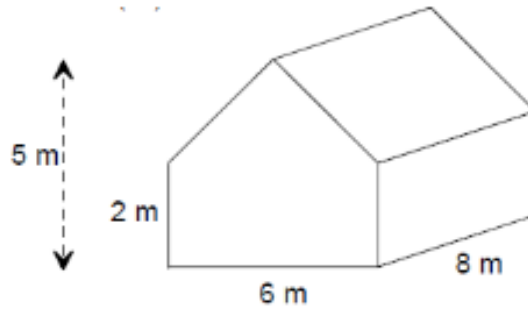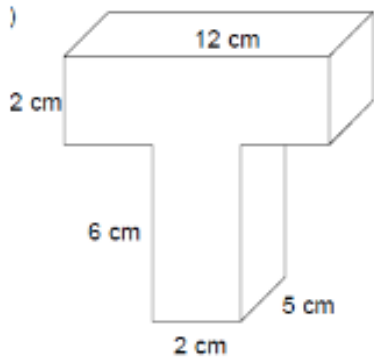
2. Calculate the volume and surface area of the following

3. A bucket has a radius of 11cm and is 22cm tall. I am going to use it to fill a paddling pool that has dimensions 1m by 3m by 1m. How many times will I have to fill the bucket up until the paddling pool is full?

U14 – Measures and Mensuration
Pyramids
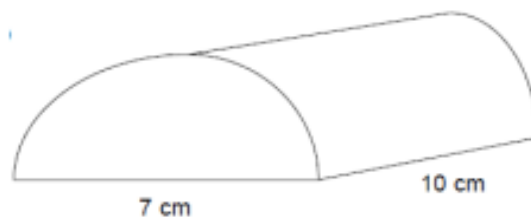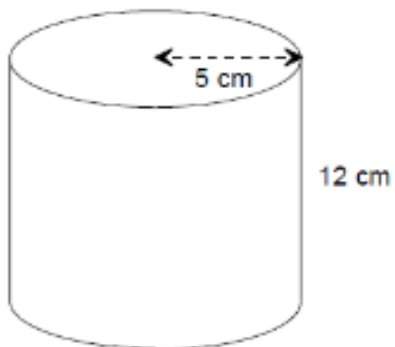**Calculator Allowed**

1.Calculate the volume of this pyramid

9 in.

6 in.

6 in.

2.Calculate the volume of this pyramid

11 m

9 m

11 m

3.Calculate the volume of this shape

6 m

5 m

8 m

8 m

U14 – Measures and Mensuration
Cones
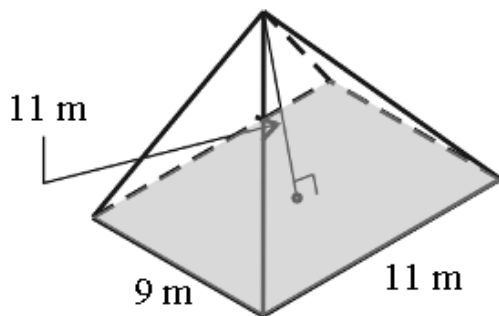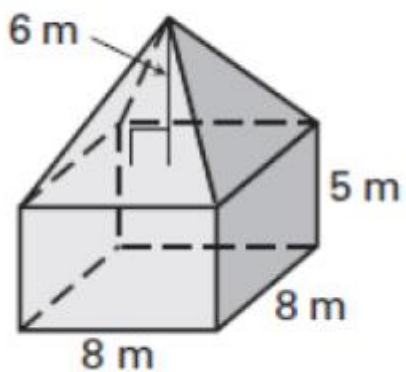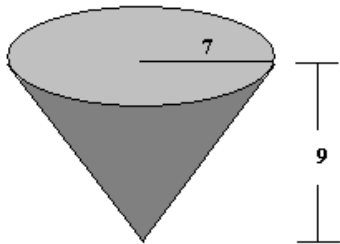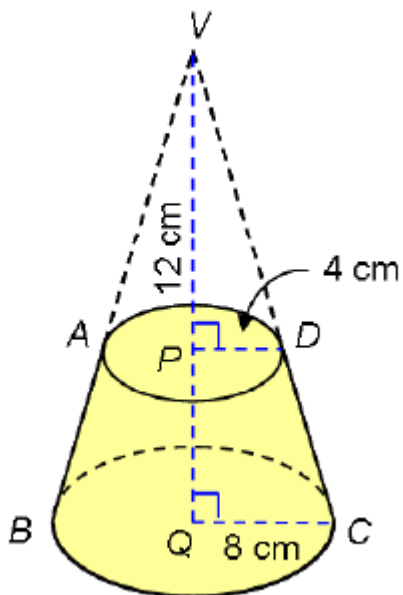**Calculator Allowed**

1.Calculate the volume of this cone
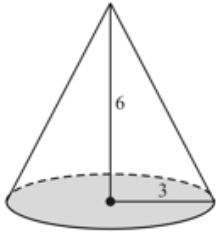
2.Calculate the volume of this cone

3.Calculate the volume of this shape

U14 – Measures and Mensuration
Volume and Surface Area
Calculator Allowed

1.

The diagram shows a child's toy.

22cm

7cm
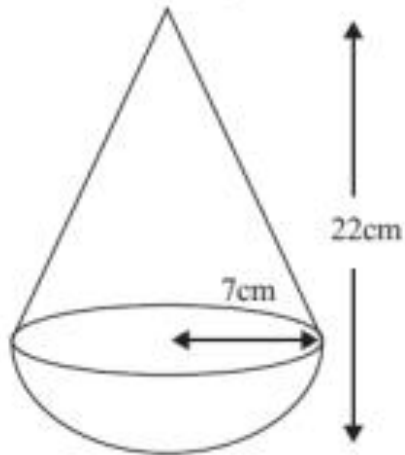
The toy is made from a cone on top of a hemisphere.

The cone and hemisphere each have radius 7 cm.
The total height of the toy is 22 cm.

Work out the volume of the toy.
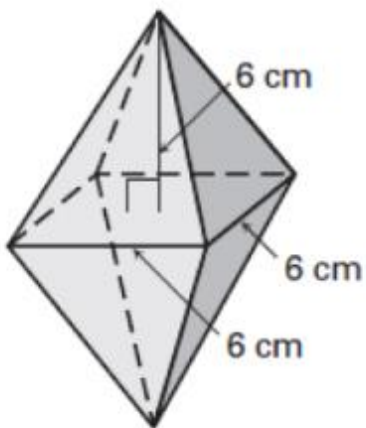Give your answer correct to 3 significant figures.

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2. Calculate the volume

6 cm

6 cm

6 cm

U14 – Measures and Mensuration
Volume and Surface Area
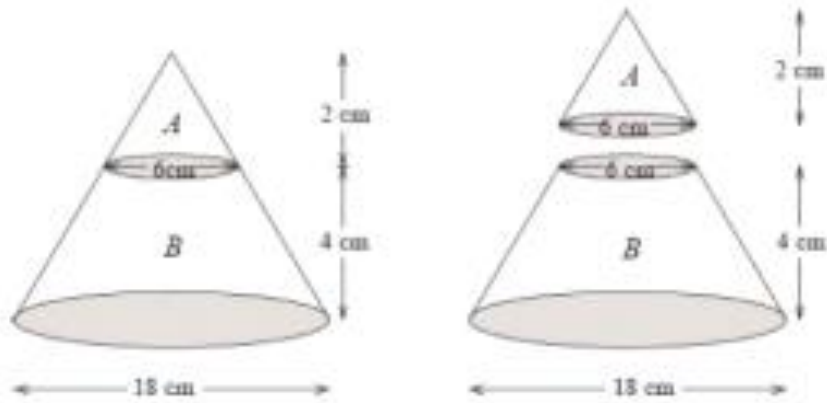## Calculator Allowed

1,

Diagram NOT accurately drawn

The diagram represents a large cone of height 6 cm and base diameter 18 cm.

The large cone is made by placing a small cone A of height 2 cm and base diameter 6 cm on top of a frustum B.

Calculate the volume of the frustum B.
Give your answer in terms of π.

2.

Calculate the surface area and volume of the following solid

8 cm

10 cm

16 cm