

## Volume of Solids and Liquids (1) (Revision)

In this Volume revision worksheet, you will solve word problems involving volume of a cube/cuboid and rate of taps.

### My Learning Notes on Volume of Solids and Liquids (1)!

1)

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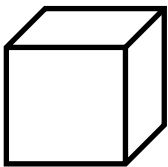

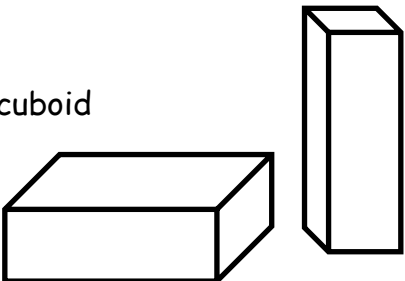
Name: \_\_\_\_\_

Class: \_\_\_\_\_

Date	Homework

## P6 Volume of Solids and Liquids

### REVISION ON FORMULAS

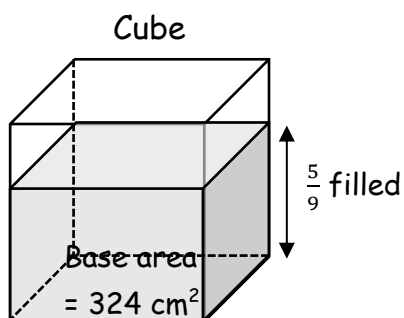
Volume of Cube <div style="text-align: center; margin-top: 10px;">  </div>	$L \times L \times L$	<b>OR</b> Base area x Height <div style="text-align: center; margin-top: 10px;">  </div> Base area can be any side of the face.
Volume of cuboid <div style="text-align: center; margin-top: 10px;">  </div>	$L \times B \times H$	

### Conversion

1 litre = \_\_\_\_\_ ml = \_\_\_\_\_  $\text{cm}^3$

### Finding the capacity and volume of water.

1.



Capacity of the cubical tank (Volume of water to the brim)

→

Answer: \_\_\_\_\_ ℓ \_\_\_\_\_ ml

Volume of water in the cubical tank

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Answer: \_\_\_\_\_ ℓ \_\_\_\_\_ ml

Volume of water needed to fill to its brim

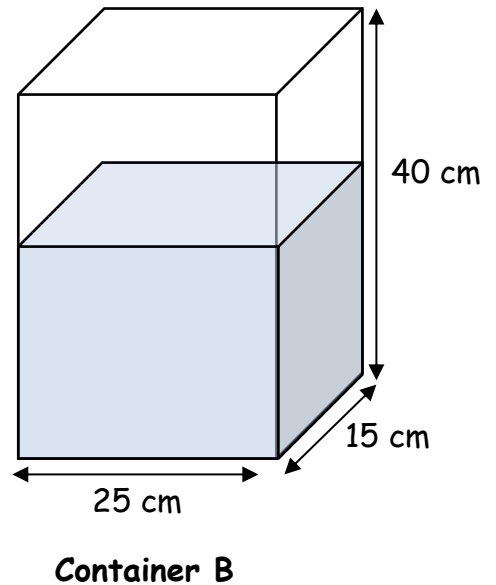
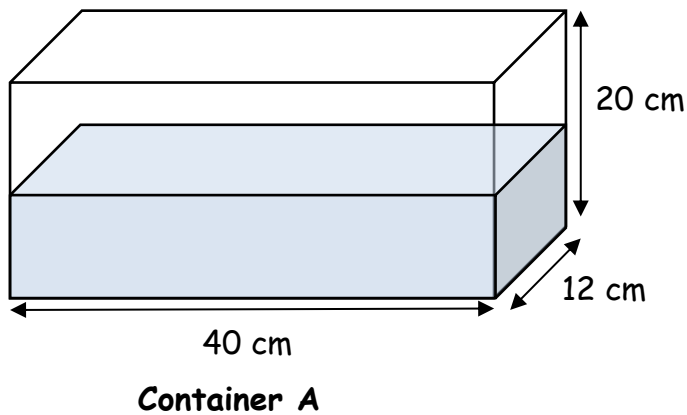
→

Answer: \_\_\_\_\_ ℓ \_\_\_\_\_ ml

Read the questions carefully and underline keywords! Remember to write the correct units of measurement.

Show your working clearly in the spaces provided.

2. Container A and Container B contained an equal amount of water at first.  
1 800 cm<sup>3</sup> of water was poured from Container B into Container A and Container A became  $\frac{3}{4}$  full. How much more water must be poured out from Container B so that height of the water level in it becomes 8 cm?



Answer: \_\_\_\_\_

3. A rectangular container measures 32 cm long, 25 cm wide and 20 cm high was 70% filled with water at first. Mrs Chang poured some water from the container into a jug until the water level of the container dropped to 9 cm.

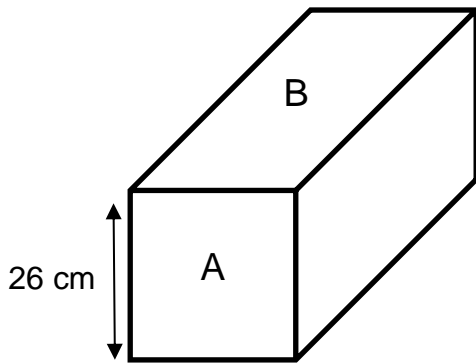
Mrs Chang then poured the water from the jug into some identical cups. Each cup has a capacity of  $\frac{11}{20}$  ℓ. How much millilitres of water were left in the jug if all the cups were filled to the brim?

Answer: \_\_\_\_\_

4. The base area of a rectangular container is 588 cm<sup>2</sup>. The length of the rectangular container is thrice as long as its breadth. The height of the rectangular container is twice is of its breadth. Find the volume of the rectangular container.

Answer: \_\_\_\_\_

5. The cuboid below is made up of square and rectangular faces. The ratio of the area of the square face A to the area of the rectangular face B is 2 : 5. Find the volume of cuboid.



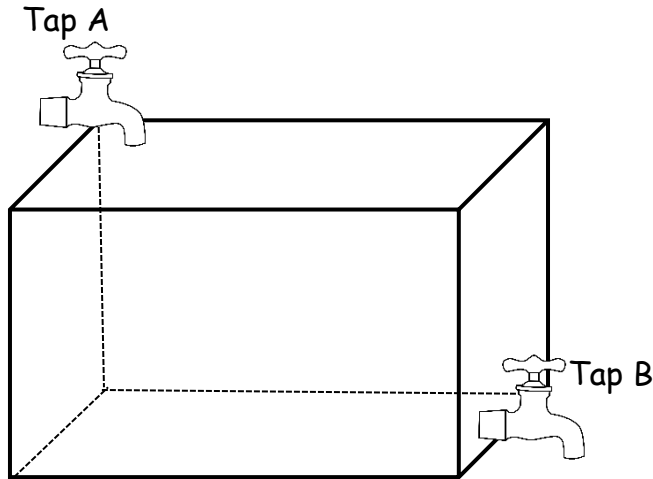
Answer: \_\_\_\_\_

### Taps

6. A rectangular tank measuring 75 cm by 56 cm by 70 cm was half-filled with water. Water from a tap is flowing into the tank at 7 litres per minute. How long will it take the tap to fill the tank to  $\frac{5}{7}$  of its capacity? (1 litre = 1000 cm<sup>3</sup>)

Answer: \_\_\_\_\_

7. An empty rectangular tank has a Tap B attached to it and a Tap A above it. Tap A takes 3 minutes to fill the tank completely. Tap B can drain water out of the tank in 4 minutes, if it was filled completely. If both taps are turned on at the same time, what is the capacity of the tank if it contains 91 litres of water after 7 minutes?



Answer: \_\_\_\_\_

8. Tap A could fill a tank completely with water in 5 minutes. Tap B could empty the same tank which was completely filled with water in 9 minutes. Both taps were turned on when the tank was empty. They were turned off as soon as the tank was full. How long did it take to fill the tank completely with water? Give your answer in minutes.

Answer: \_\_\_\_\_

9. A tank is filled with water from 2 taps. Tap X alone can fill the tank completely in 10 minutes. Tap Y alone can fill the tank twice as fast as Tap X. Both taps are turned on at the same time.

- (a) How long does it take for Tap Y alone to fill the tank completely?
- (b) How long does it take for both taps to fill the tank completely? Leave your answer in mixed number.

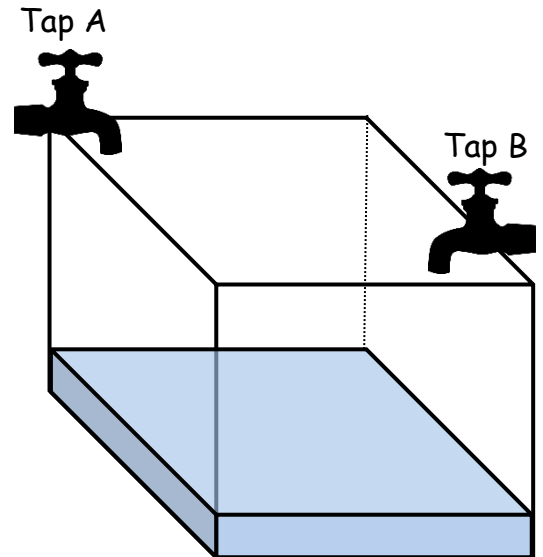
Answer: (a) \_\_\_\_\_

(b) \_\_\_\_\_

10. Water flowed from a tap at the same rate into a rectangular tank measuring 50 cm by 38 cm by 45 cm. At 6 p.m., the height of the water in the tank was 13 cm. At 6.25 p.m., it was  $\frac{3}{5}$  filled with water. How much water from the tap flowed into the tank in one minute? Leave your answer in litres and millilitres.

Answer: \_\_\_\_\_

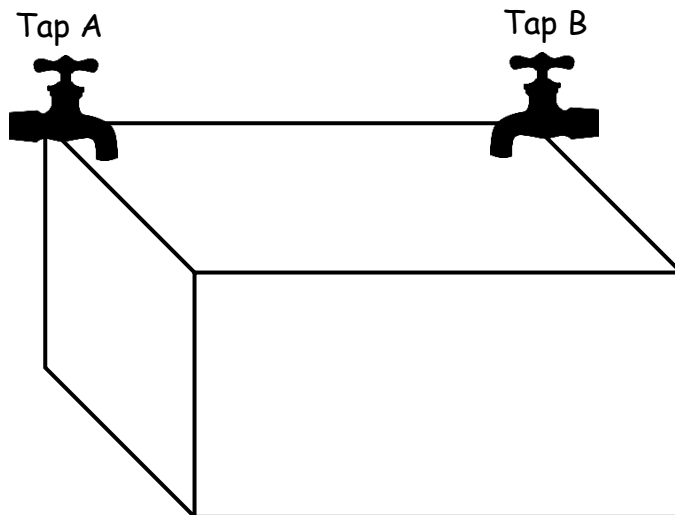
11. Tap A and Tap B can fill a same tank at a rate of 2 ℓ per minute and 3 ℓ per minute respectively. The tank was filled with some water at first. Tap A was then turned on for 20 minutes. Until the tank was  $\frac{1}{3}$ -filled with water, Tap B was turned on. 35 minutes after Tap B was turned on, the tank was  $\frac{5}{8}$  filled with water. How much water was in the tank at first?



Answer: \_\_\_\_\_



12. The figure below shows Tap A, Tap B and an empty tank with a capacity of 179.2 litres. Water flows from Tap A at a rate of 2.8 litres per minute and from Tap B at a rate of 3.5 litres per minute. Tap B was turned on first while Tap A was turned on 8 minutes later. The taps were turned off at the same time when the tank was completely filled without overflowing. How much water flowed from Tap B?



Answer: \_\_\_\_\_

13. An empty container measuring 60 cm by 48 cm by 75 cm was filled with water from a tap. After 12 minutes, the container was  $\frac{3}{5}$  full. A second tap was turned on to fill up the tank **after the 15<sup>th</sup> minute** together with the first tap.
- (a) How many litres of water per minute were flowing out from the first tap?
- (b) If water from the second tap was flowing at a rate of 7.2 litres per minute, what was the total time taken to fill the tank to its brim?

Answer: (a) \_\_\_\_\_

(b) \_\_\_\_\_

14. At 10 32, a rectangular tank measuring 40cm by 30cm by 40cm was  $\frac{1}{6}$  filled with water. At the same time, Tap X with water flowing out at a rate of 3 litres per minute was turned on.
- At 10 34, Tap Y was turned on to drain water out of the tank at a fixed rate.
- At 10 45, the tank was 75% filled with water. At what time would the tank be filled to the brim?

Answer: \_\_\_\_\_

**Thinking Out of the Box (Optional)**

15. The empty tank shown below is made up of 2 containers.

The top container is a cuboid of base area  $390 \text{ cm}^2$ .

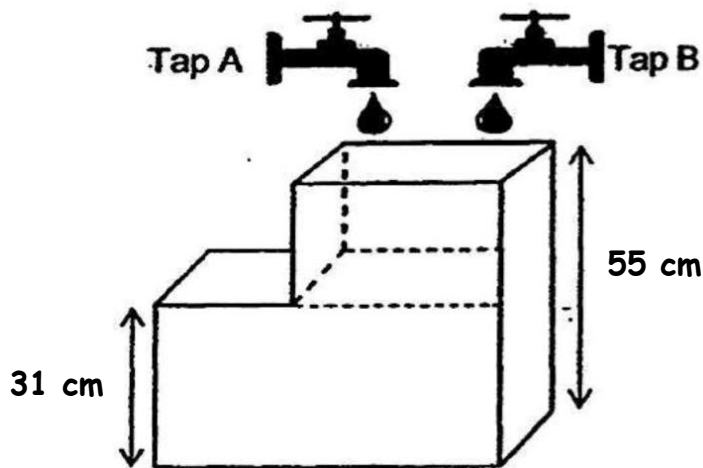
The bottom container is a cuboid of base  $900 \text{ cm}^2$  and height  $31 \text{ cm}$ .

When Tap A was turned on, the height of water level in the bottom container was increasing at the rate of  $2.5 \text{ cm}$  per minute.

When the bottom container was completely filled, Tap B was turned on too.

The rate of water flowing from Tap B was  $350 \text{ ml}$  per minute.

- (a) How long did it take for the bottom container to be completely filled?
- (b) How long did it take for the whole tank to be completely filled?



Answer: (a) \_\_\_\_\_

(b) \_\_\_\_\_