Volume Final Practice Part 3

KEY

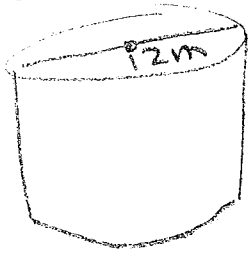
Name: Date:

Directions: Read each question carefully and neatly show all work when answering. All the information required by you is provided.

1. A. There was a vacant room with the dimensions of 15m long, 12m wide and 10m high. What is the volume of this room?(2 marks) $V = LwH$

$15 \times 12 \times 10 = \boxed{1800\ m^3}$

B. If you owned a storage container that was a cylinder with the measurements: 12m diameter and 6m high. What is the volume of the container?(2 marks)



12 m diameter so radius is 6m $V = \pi r^2 h$

$V = \pi r^2 h$

$V = (3.14)6^2(6)$

$V = 3.14 \times 36 \times 6 = \boxed{678.24\ m^3}$

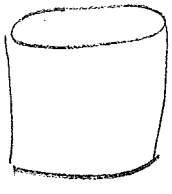
2. Tanner owned a rectangular prism-shaped tree fort that was had a volume of $224m^3$. The length of the fort is 7m, the width is 8m, how high is it?(2 marks)

$V = LwH \quad V = 224 \quad L = 7 \quad w = 8 \quad H = ?$

$224 = (7)(8)H$

$\frac{224}{56} = \frac{56H}{56}$ $\boxed{H = 4\ m}$

3. If Mr. T had a cylinder with a radius of 6m and a volume of 2009.6 m^3, what is the cylinder's height? (2 marks)(round your answer to the tenth place).



$r = 6$

$V = 2009.6$

$\pi = 3.14$

$V = \pi r^2 h$

$2009.6 = 3.14\ 6^2 h$

$2009.6 = 3.14(36)H$

$2009.6 = 113.04H$

$\frac{2009.6}{113.04} = H$

$H = 17.7777$

$\boxed{H = 17.7\ m}$

(tenth place)

4. If Hailey owned a cylinder that was 9m high and had a volume of 452.16 m^3, what is the radius of this container?(2 marks) $V = \pi r^2 h \quad V = 452.16\ m^3 \quad h = 9 \quad r = ?$

$452.16 = 3.14(r^2)9$

$\frac{452.16}{28.26} = \frac{28.26r^2}{28.26}$

$16 = r^2$

$\sqrt{16} = r$ $\boxed{r = 4m}$

5. Mr. C's completely emptied(gutted) his classroom so it contained a volume of air that was 600 m^3. If 12 students walked into his classroom, what volume of air remains with these students in his classroom? The volume of space taken up by the average person is 0.095m^3.(2 marks)

600 m^3 total class air.

12 x 0.095 = 1.14 m^3
(students) (per person)

↑ volume total taken up by students.

600 − 1.14 = 598.86 m^3
air remained

6. A. Mr. Maloney bought a warehouse for his water business. If the warehouse is 30m long, 15m high and 50m wide, what is the volume of space available for his water business?(1 mark)

V = LWH
V = 30 x 50 x 15
V = 22500 m^3

B. If his water containers are shaped like a cube and measure 5m on one side, what is the volume of each water container?(1 mark)

V = LWH

V = 5 x 5 x 5
V = 125 m^3

C. If he is able to pile and stack these water containers tight, how many can he pack(fit) into his warehouse from floor to ceiling?(2 marks)

22500 ÷ 125 = 180 water containers
(total volume)

Bonus Question

D. If his warehouse is packed with these containers, how many litres of water does he have in total? Remember, 1 m^3 = 1000 liters of water.(1 mark)

180 containers x 125 m^3 = 22500 m^3
(per container) (total volume of containers)

22500 x 1000 = 22,500,000 liters of water
(liters per m^3)

(Now Check your work!)

Volume, Area, Circumference Final Practice Part 4:(fully show all work/steps)
pi=3.14

$A = \pi r^2$ $C = \pi d$ or $2\pi r$

1. If a circle has a diameter of 12cm, what is the area?

$d = 12cm$ so $r = 6cm$

$A = \pi r^2$ $A = 3.14(6)^2 = 3.14(36)$

$A = 113.04\ cm^2$

2. If a circle has a radius of 8 cm, what is the area?

$A = \pi r^2$

$A = 3.14(8)^2$

$A = 3.14(64)$

$A = 200.96 cm^2$

3. If a circle has an area of 452.16 cm^2, what is the: $A = \pi r^2$ (Use Algebra)

a. Diameter

$A = \pi r^2$

$\frac{452.16}{3.14} = \frac{3.14(r^2)}{3.14}$

$r^2 = 144 \rightarrow r = \sqrt{144}$ $r = 12cm$

$d = 12 \times 2 = 24cm$

b. Radius

12cm

4. If a rectangular prism has a volume of 2688 m^3, and the length is 12m, width is 14m, what is the height? $V = LWH$ $V = 2688m^3$ $L = 12m$ $W = 14m$ $H = ?$

$2688 = (12)(14)(H)$ (use algebra to find unknown H)

$\frac{2688}{168} = \frac{168H}{168}$ $H = 16m$

5. What is 5^2?

$5 \times 5 = 25$

6. What is the circumference of a circle who's diameter is 16cm?

$C = \pi d$

$C = (3.14)(16)$

$C = 50.24\ cm$

7. What is the diameter of a circle when the circumference is 50.24 meters?

$C = \pi d$ (use algebra to find d).

$\frac{50.24}{3.14} = \frac{3.14d}{3.14}$ → $d = 16m$

8. What is the radius of a circle who's circumference is 56.52 cm?

$C = 2\pi r$ (Use algebra to find radius)

$56.52 = 2(3.14)r$

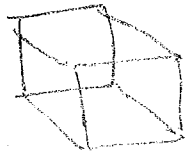
$\frac{56.52}{6.28} = \frac{6.28r}{6.28}$ → $r = 9cm$

9. What is the volume of a perfect square cube that has a side length of 5cm?

$V = LWH$

$V = 5 \times 5 \times 5$

$V = 125 cm^3$



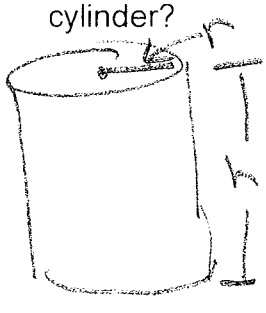
← perfect square cube

10. What are the dimensions of the perfect square who's volume is 125 m^3?

$125 = (\text{dimentions})^3$

The dimensions have to be 5cm each

11. A cylinder has a side length of 15m, and a volume of 423.9 m^3, what is the radius of the cylinder?



$V = \pi r^2 h$ (use algebra)

$423.9 = (3.14) r^2 (15)$

$423.9 = (3.14)(15) r^2$

$\frac{423.9}{47.1} = \frac{(47.1) r^2}{47.1}$

$r^2 = 9$

$r = \sqrt{9}$

$r = 3m$

12. What is the volume of a cylinder has a diameter of 12 meters and a side length of 6 meters?

$V = \pi r^2 h$ $d = 12m$ so radius is 6m

$V = (3.14)(6)^2(6)$

$V = (3.14)(36)(6)$

$V = 678.24\ m^3$