Equation Solver
- Math, Upicenter

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Date _____
Geometry

Volume with Algebra

1. A brick in the shape of a rectangular prism has a base that measures 3 inches by 5 inches. If the volume of the brick is 90 cubic inches, what is the height of the brick?

1) 15
2) 6
3) 8
4) 11

$V = lwh$
$90 = 3(5)(h) \rightarrow x = 6$
$\frac{90}{15} = \frac{15h}{15}$
$6 = h$

2. A right circular cylinder has a volume of 1,000 cubic inches and a height of 8 inches. What is the radius of the cylinder to the *nearest tenth of an inch*?

1) 6.3
2) 11.2
3) 19.8
4) 39.8

$V = \pi r^2 h$
$\frac{1000}{8\pi} = \frac{\pi r^2 (8)}{8\pi} \rightarrow x = 6.3$
$\sqrt{39.} = \sqrt{r^2}$
$6.3 = r$

3. The base of a pyramid is a rectangle with a width of 6 cm and a length of 8 cm. Find, in centimeters, the height of the pyramid if the volume is 288 cm^3.

1) 6
2) 8
3) 18
4) 24

$V = \frac{1}{3}lwh$
$288 = \frac{1}{3}(6)(8)(h) \rightarrow x = 18$
$\frac{288}{16} = \frac{16x}{16}$

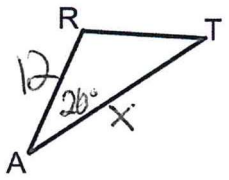
4. Find the radius of a sphere with a volume of 576π cubic inches. Find the answer to the nearest tenth of an inch.

1) 4.9
2) 15.1
3) 9.2
4) 7.6

$V = \frac{4}{3}\pi r^3$
$576\pi = \frac{4}{3}\pi r^3 \rightarrow x = 7.6$
$\frac{576\pi}{\frac{4}{3}\pi} = \frac{\frac{4}{3}\pi r^3}{\frac{4}{3}\pi}$
$\sqrt[3]{432} = \sqrt[3]{r^3}$
$7.6 = r$

5. The area of ΔART is 48 square inches. If $\overline{AR} = 12$ and $\angle TAR = 26$, find $\overline{AT}$ to the nearest tenth of an inch.

1) 17.4
2) 18.2
3) 21.7
4) 24.9



$A = \frac{1}{2}ab\sin C$ $\quad x = 18.2$

$48 = \frac{1}{2}(12)(x)\sin 26$

$\frac{48}{2} = \frac{24x}{2}$ $\quad 18.2 = x$

6. The volume of a cylinder is 12,566.4 cm^3. The height of the cylinder is 8 cm. Find the radius of the cylinder to the *nearest tenth of a centimeter*.

1) 12.3
2) 22.4
3) 7.9
4) 501.8

$V = \pi r^2 h$ $\quad x = 22.4$

$\frac{12,566.4}{8\pi} = \frac{\pi r^2(8)}{8\pi}$

$\sqrt{500} = \sqrt{r^2}$

$22.4 = r$

7. The Parkside Packing Company needs a rectangular shipping box. The box must have a length of 11 inches and a width of 8 inches. Find, to the *nearest tenth of an inch*, the height of the box such that the volume is 800 cubic inches.

1) 9.1
2) 14.7
3) 42.1
4) 7.9

$V = lwh$ $\quad x = 9.1$

$800 = 11(8)(h)$

$\frac{800}{88} = \frac{88h}{88}$

$9.1 = h$

8. If the volume of a sphere is 36π, what is the radius of the sphere?

1) 3
2) 6
3) 12
4) 24

$V = \frac{4}{3}\pi r^3$ $\quad x = 3$

$\frac{36\pi}{\frac{4}{3}\pi} = \frac{\frac{4}{3}\pi r^3}{\frac{4}{3}\pi}$

$\sqrt[3]{27} = \sqrt[3]{r^3}$

$3 = r$

9. The volume of a sphere is approximately 44.6022 cubic centimeters. What is the radius of the sphere, to the *nearest tenth of a centimeter*?

1) 2.2
2) 3.3
3) 4.4
4) 4.7

$V = \frac{4}{3}\pi r^3$ $\quad x = 2.2$

$\frac{44.6022}{\frac{4}{3}\pi} = \frac{\frac{4}{3}\pi r^3}{\frac{4}{3}\pi}$

$\sqrt[3]{10.6} = \sqrt[3]{r^3}$

$2.2 = r$

10. An ice cream waffle cone can be modeled by a right circular cone with a base diameter of 6.6 centimeters and a volume of 54.45π cubic centimeters. What is the number of centimeters in the height of the waffle cone?

$r = 3.3$

1) $3\frac{3}{4}$
2) 5
3) 15
4) $24\frac{3}{4}$

$V = \frac{1}{3}\pi r^2 h$

$54.45\pi = \frac{1}{3}\pi(3.3)^2 h$ → $x = 15$

$\frac{54.45\pi}{\frac{1}{3}\pi(3.3)^2} = \frac{\frac{1}{3}\pi(3.3)^2 h}{\frac{1}{3}\pi(3.3)^2}$

$15 = h$

10. The Great Pyramid of Giza was constructed as a regular pyramid with a square base. It was built with an approximate volume of 2,592,276 cubic meters and a height of 146.5 meters. What was the length of one side of its base, to the *nearest meter*?

1) 73
2) 77
3) 133
4) 230

$V = \frac{1}{3}lwh$

$2{,}592{,}276 = \frac{1}{3}(x)(x)(146.5)$

$\frac{2{,}592{,}276}{48.83} = \frac{48.83x^2}{48.83}$

$\sqrt{53084..} = \sqrt{x^2}$

$230 = x$

11. Find the length of the radius of a cylinder to the *nearest tenth* if it has a volume of 60 cm^3 and a height of 10 cm.

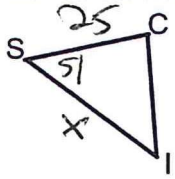
$V = \pi r^2 h$

$\frac{60}{10\pi} = \frac{\pi r^2(10)}{10\pi}$

$1.909.. = \sqrt{r^2}$

$1.9 = r$

12. The area of ΔSCI is 124 square centimeters. If $\overline{SC} = 25$ and $\angle CSI = 51$, find $\overline{SI}$ to the nearest tenth of a centimeter.



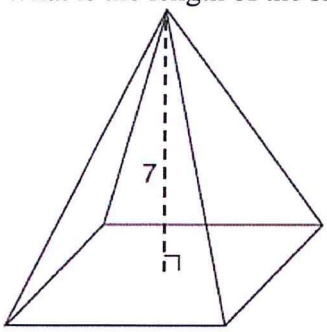
$A = \frac{1}{2}ab\sin C$

$124 = \frac{1}{2}(25)(x)\sin 51$

$\frac{124}{9.7..} = \frac{9.7..x}{9.7.}$

$12.8 = x$

13. The pyramid shown below has a square base, a height of 7, and a volume of 84. What is the length of the side of the base?



$V = \frac{1}{3}lwh$

$84 = \frac{1}{3}(x)(x)(7)$

$\frac{84}{\frac{7}{3}} = \frac{\frac{7}{3}x^2}{\frac{7}{3}}$

$\sqrt{36} = \sqrt{x^2}$

$6 = x$