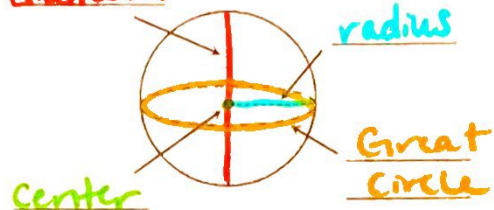
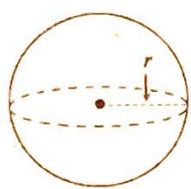
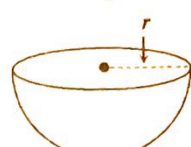
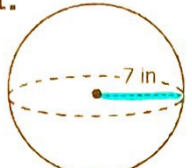
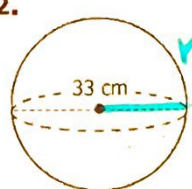
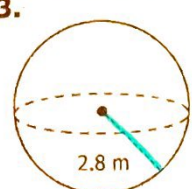
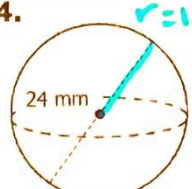
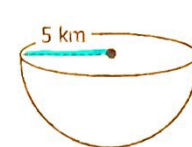


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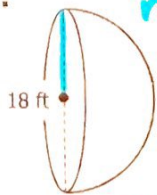
Date:

Topic: 8.6 Notes

Class:

Main Ideas/Questions	Notes
<p>Parts of a Sphere</p>	<p><u>diameter</u></p>  <p><u>radius</u></p> <p><u>Great Circle</u></p> <p><u>center</u></p> <p>A <b>sphere</b> is a solid in which each point is equidistant from a center point.</p> <p>The <b>great circle</b> slices the sphere into two <b>hemispheres</b>.</p>
<p>Volume &amp; Formulas</p> <p>Sphere</p>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <math display="block">V = \frac{4}{3} \pi r^3</math> </div> <p>Hemisphere</p>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <math display="block">V = \frac{2}{3} \pi r^3</math> </div>	<p>Find the <u>volume</u> of each sphere below.</p> <p>1.</p>  $V = \frac{4}{3} \pi r^3$ $V = \left(\frac{4}{3}\right)(\pi)(7^3)$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math>V = 1436.76 \text{ in}^3</math> </div> <p>2.</p>  <p><u>Volume</u></p> $r = 16.5 \quad V = \frac{4}{3} \pi r^3$ $V = \left(\frac{4}{3}\right)(\pi)(16.5^3)$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math>V = 18,816.57 \text{ cm}^3</math> </div> <p>Find the <u>surface area</u> of each sphere below.</p> <p>3.</p>  $V = \frac{4}{3} \pi r^3$ $V = \left(\frac{4}{3}\right)(\pi)(2.8^3)$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math>V = 91.95 \text{ m}^3</math> </div> <p>4.</p>  $r = 12 \quad V = \frac{4}{3} \pi r^3$ $V = \left(\frac{4}{3}\right)(\pi)(12^3)$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math>V = 7,230.23 \text{ mm}^3</math> </div> <p>Find the <u>volume</u> of each hemisphere below.</p> <p>5.</p>  $V = \frac{\frac{4}{3} \pi r^3}{2}$ <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-right: 20px;"> <math>261.8 \text{ km}^3</math> </div> $V = \frac{\frac{4}{3} \pi (5^3)}{2} = \frac{523.6}{2} =$

6.



$r=9$

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

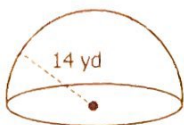
$$1,526.82 \text{ ft}^3$$

$$V = \frac{4}{3} (\pi) (9^3) = \frac{3053.63}{2} =$$

~~Volume~~

Find the ~~surface area~~ of each hemisphere below.

7.

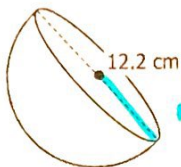


$$V = \frac{4}{3} \pi r^3$$

$$5,747.02 \text{ yd}^3$$

$$V = \frac{4}{3} \pi (14^3) = \frac{11494.04}{2} =$$

8.



$r=6.1$

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

$$475.39 \text{ cm}^3$$

$$V = \frac{4}{3} \pi (6.1^3) = \frac{950.78}{2} =$$

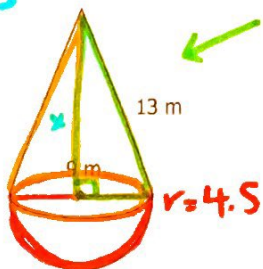
Applications



$$x^2 + 4.5^2 = 13^2$$

$$x^2 = 140.75$$

$$x = 12.2$$



9. Find the volume of a sphere with a great circle area of 201.06 square inches.



$$A = \pi r^2$$

$$\frac{201.06}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{64} = \sqrt{r^2}$$

$$r = 8$$

~~Volume~~

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

$$V = \frac{4}{3} \pi (8^3)$$

$$V = 2,144.66 \text{ in}^3$$

10. Find the surface area of the figure to the left.

Hemisphere:  $V = \frac{4}{3} \pi r^3$

Cone:  $V = \frac{1}{3} \pi r^2 (h)$

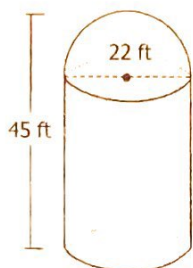
$$V = \left(\frac{4}{3}\right) (\pi) (4.5^3)$$

$$V = \frac{1}{3} (\pi) (4.5^2) (12.2)$$

$$V = 190.85 \text{ m}^3$$

$$V = 258.71 \text{ m}^3$$

$$V = 449.56 \text{ m}^3$$



11. The Henley's have a silo on their farm to store grain. Assuming the entire space is used, what is the maximum amount of grain that the silo can hold?