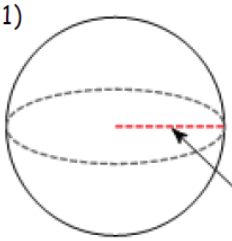
April 07, 2013

# 10.5 Practice Solutions

Directions: Find the surface area of each figure in terms of π and rounded to the nearest tenth.

1)



6 in

$SA = 4\pi r^2$

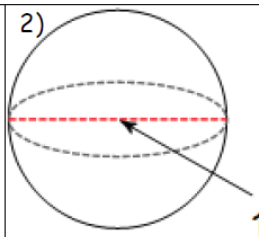
$= 4\pi (6)^2$

$= 4(36)\pi$

$= 144\pi \text{ in}^2$

or $\approx 452.4 \text{ in}^2$

2)



14 km

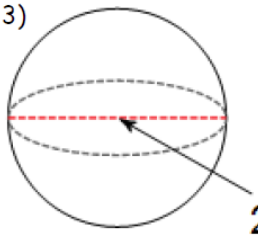
$SA = 4\pi r^2$

$= 4(7^2)\pi$

$= 196\pi \text{ km}^2$

or $\approx 615.8 \text{km}^2$

3)



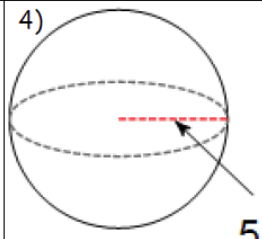
2 cm

$SA = 4(1)^2\pi$

$= 4\pi \text{ cm}^2$

or $\approx 12.6 \text{ cm}^2$

4)



5.9 mi

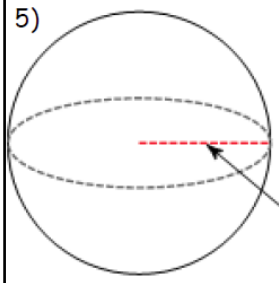
$SA = 4(5.9)^2\pi$

$= 139.24\pi \text{ mi}^2$

or $\approx 437.4 \text{ mi}^2$

Directions: Find the volume of each figure in terms of π and rounded to the nearest tenth.

5)



10 ft

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

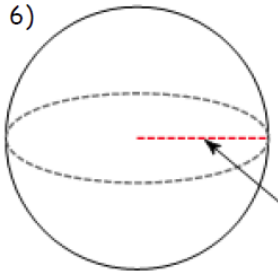
$= \frac{4}{3}(\pi)(10)^3$

$= \frac{4}{3}(1000)\pi$

$= \frac{4000}{3}\pi \text{ ft}^3$

or $\approx 4188.8 \text{ ft}^3$

6)



6 yd

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

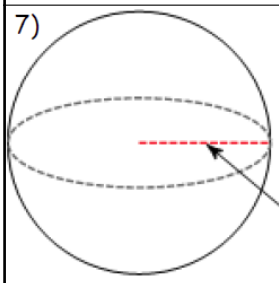
$= \frac{4}{3}\pi (6)^3$

$= \frac{4}{3}(216)\pi$

$= 288\pi \text{ yd}^3$

or $\approx 907.8 \text{ yd}^3$

7)



4 km

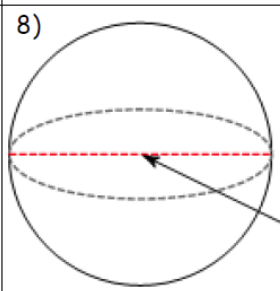
$V = \frac{4}{3}(4)^3\pi$

$= \frac{4}{3}(64)\pi$

$= \frac{256}{3}\pi \text{ km}^3$

or $\approx 268.1 \text{km}^3$

8)



4.6 cm

$V = \frac{4}{3}\pi (2.3)^3$

$= \frac{4}{3}\left(\frac{12167}{1000}\right)\pi$

$= \frac{12167}{750}\pi \text{ cm}^3$

or

$\approx 50.96$

$\approx 51.0 \text{ cm}^3$

9) The surface area of a sphere is $100\pi$ in$^2$. What's the sphere's volume?

$SA = 4\pi r^2$

$\frac{100\pi}{4\pi} = \frac{4\pi r^2}{4\pi}$

$25 = r^2$

$5 = r$

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

$= \frac{4}{3}\pi 5^3$

$= \frac{500}{3}\pi$ in$^3$

10) The surface area of a sphere is $324\pi$ in$^2$. What's the sphere's volume?

$\frac{324\pi}{4\pi} = \frac{4\pi r^2}{4\pi}$

$81 = r^2$

$9 = r$

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

$= \frac{4}{3}\pi 9^3$

$= 972\pi$ in$^3$

11) The surface area of a sphere is $49\pi$ in$^2$. What's the sphere's volume?

$\frac{49\pi}{4\pi} = \frac{4\pi r^2}{4\pi}$

$\sqrt{\frac{49}{4}} = \sqrt{r^2}$

$\frac{7}{2} = r$

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

$= \frac{4}{3}(\pi)\left(\frac{7}{2}\right)^3$

$= \frac{343}{6}\pi$ in$^3$