3-27-18 5th Geo

① If the radius of a circle is quadrupled, how much larger is the area?

$A = \pi r^2$ $A = \pi (4r)^2$

$\pi \cdot 16 r^2$

$16 \pi r^2$

② The ratio of the radii in two spheres is 2:3. What is the ratio of the volumes?

$V = \frac{4}{3}\pi r^3$ 2:3 → 8:27

③ The ratio of the areas of two circles is 16:25. What is the ratio of the radii of the circles?

$\sqrt{16:25}$

4:5

(4) A circle has its radius increased by 30%. How much larger is its area?

$A = \pi r^2$ $A = \pi (1.3r)^2$

$\pi \cdot 1.69 r^2$

169%

69% larger

(5) The radius of a circle is decreased by 20%. How much smaller is its area?

$A = \pi r^2$ $A = \pi (.80r)^2$

$\pi \ .64 r^2$

$.64 \pi r^2$

64% left

Decreased by 36%.

(6) The radius of a sphere is increased by 10%. How much larger is its volume?

$V = \frac{4}{3}\pi r^3$ $V = \frac{4}{3}\pi (1.10r)^3$

$\frac{4}{3}\pi \boxed{1.331} r^3$

133.1%

33.1% increase

(7) A cylinder has its radius doubled. How much larger is the volume of the cylinder?

$V = \pi r^2 h$ $\quad V = \pi \cdot (2r)^2 h$

$\pi \cdot 4 r^2 h$

$\boxed{4} \pi r^2 h$

(8) A cone has its radius tripled and height doubled. How much more volume will it hold.

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

$\frac{1}{3} \pi \, 9r^2 \cdot 2 \cdot h$

$\boxed{18} \frac{1}{3} \pi r^2 h$

3-27-18 6th Geo

(1) If the radius of a circle is tripled, how much more area does it have?

$A = \pi r^2$ $A = \pi (3r)^2$

$\pi \cdot 9r^2$

$\boxed{9}\pi r^2$

(2) The ratio of the radii of two spheres is 2:5. What will the ratio of their volumes be?

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

$(2:5)^3$

8:125

(3) The ratio of the area of two circles is 4:9. What is the ratio of the radii?

$\sqrt{4:9}$

2:3

(4) The radius of a circle is increased by 20%. How much larger is the area?

$A = \pi r^2$ $A = \pi (1.2r)^2$

$\pi\ 1.44\ r^2$

$1.44\ \pi r^2$

44% larger

(5) The radius of a circle is decreased by 30%. How much does that lower the area by?

$A = \pi r^2$ $A = \pi (.7r)^2$

$\pi\ .49\ r^2$

$.49\ \pi r^2$

51% decrease

(6) In a cylinder the radius is tripled. How much of an increase does the volume have?

$V = \pi r^2 h$ $V = \pi (3r)^2 h$

$\pi \cdot 9 r^2 h$

$9 \pi r^2 h$

(7) In a cone, the radius is tripled and the height is doubled. How much more is the volume?

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

$\frac{1}{3}\pi 9r^2 \cdot 2h$

18 $\cdot \frac{1}{3}\pi r^2 h$