

3-4-19 5th Geo

- ① If the radius of a sphere is tripled, how much larger is its volume?

$$V = \frac{4}{3}\pi r^3$$
$$\frac{4}{3}\pi \cdot (3r)^3$$
$$\frac{4}{3}\pi \cdot \boxed{27}r^3$$

- ② The ratio of the radii of two spheres is 2:5. What is the ratio of their volumes?

$$2^3 : 5^3 \quad V = \frac{4}{3}\pi r^3$$
$$8 : 125$$

- ③ The ratio of the volumes of two spheres is 8:343. What is the ratio of their radii?

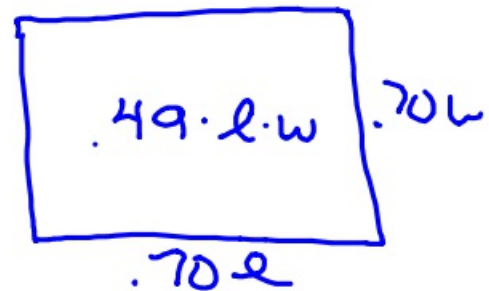
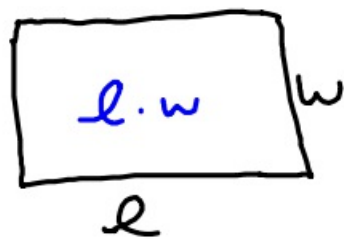
$$\sqrt[3]{8:343}$$

- ④ The ratio of the radius of a sphere is increased by 20%. How much does that increase its volume?

$$V = \frac{4}{3}\pi r^3$$
$$\frac{4}{3}\pi \cdot (1.2r)^3$$
$$\frac{4}{3}\pi \cdot \boxed{1.728}r^3$$

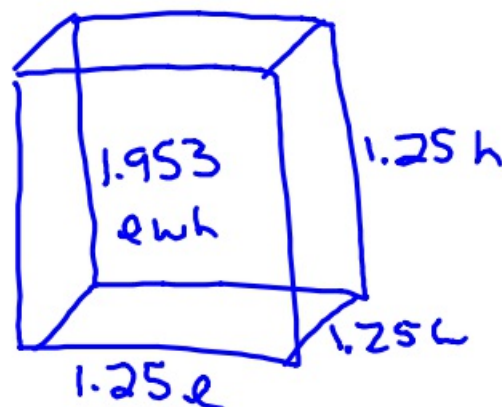
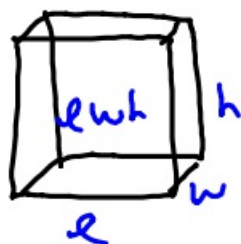
Increases by 72.8%

- ⑤ The sides of the rectangle are decreased by 30%.
How much does that decrease its area?



Decreased by 51%.

- ⑥ All sides of a cube are increased by 25%. How much larger is its volume?



$\approx 95.3\%$ bigger

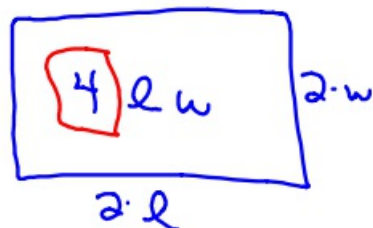
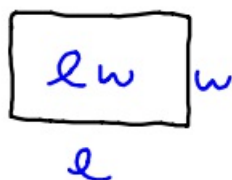
3-4-19 6th Geo

- ① If I triple the radius of a sphere, how much larger is its volume?

$$V = \frac{4}{3}\pi r^3 \quad V = \frac{4}{3}\pi (3r)^3$$
$$\frac{4}{3}\pi \cdot 27r^3$$

27

- ② If I double the length and width of a rectangle, how much larger is its area?



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

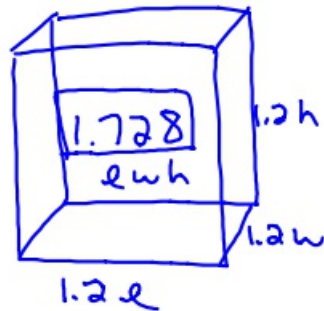
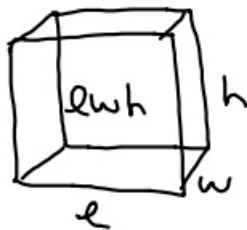
$$(2:3)^3$$
$$8:27$$

- ④ The ratio of the volumes of two spheres is 125:343. What is the ratio of their radii?

$$\sqrt[3]{125:343}$$

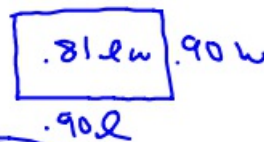
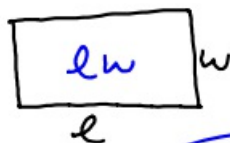
$$5:7$$

- ⑤ A cube has each edge increased by 20%. How much larger is the volume?



Increased by 72.8%

- ⑥ We decrease the length and width of a rectangle by 10%. How much does the area decrease by?



19% smaller