More Practice

1. A 120° sector is cut out of a circular piece of tin with radius 6 in. and bent to form the lateral surface of a cone. What is the volume of the cone?

2. A circle with radius 12 feet is to be cut into congruent sectors and then the sectors will be made into cones. Which will create the greatest volume capacity, 3 sectors of 120° or 4 sectors of 90°?

3. A right rectangular container is 5 cm. wide and 12 cm. long and contains water to a depth of 7cm. A stone is placed in the water and the water rises 1.7 cm. Find the volume of the stone.

4. A cone-shaped tank with base diameter 10 ft and altitude 8 ft is being filled with water at the rate of 18 ft^3 per minute. How long will it take to fill the tank?

5. A can of tennis balls contains three balls. Find the ratio of the volume of the can to the volume of the three balls.

6. A spherical tank whose radius to the outer surface is 15 ft is made of steel .5 in thick. How many cubic feet of steel are used in the construction of this tank?

7. A right rectangular container is 6 cm. wide and 15 cm. long and contains water to a depth of 5 cm. A stone that has a volume of 6 cm^3 is placed in the water. By how much does the water level rise? (Round your answer to the nearest tenth.)

8. A right cylindrical glass 8 cm. in diameter contains water to depth of 3 cm. What volume of water must be added to raise the water level to 7 cm.?

9. Water runs into a right cylindrical tank at a rate of 7 ft^3 per minute. How long will it take to fill a tank 12 ft. in diameter that is 8 ft. high? (Round your answer to the nearest minute.)

10. A cone-shaped tank with base radius 8 ft. and height 12 ft. is being filled with water at the rate of 5 ft^3 per minute. How long will it take to fill the tank?

11. Find the volume and surface are of a hemisphere of radius 10.

1. $\dfrac{16\sqrt{2}}{3}\pi$

2. 3 cones (V = 128$\sqrt{2}$ π ft^3)
3. vol of stone = 102 cm^3
4. Volume of cone = 66 2/3 π ft^3 or 209.44 ft^3
Time to fill = 209.44 / 18 = 11.64 minutes or about 12 minutes
5. radius of ball = r
radius of can is r and height of can is 6r

V of can = 6 πr^3
V of one ball = 4/3 πr3 so vol of 3 balls is 4πr^3
Therefore the ratio is 3 to 2
6. volume = 117.48 cubic feet
7. 0.1 cm
8. 24 u
9. 129.25 minutes
10. 51.2π minutes or about 160.8 minutes
11. V = 2000/3 π u^3 ; SA = 300 π u^2