Geometry (Perimeter, Area, and Volume) Homework Problems

Please do the problems on separate paper. Draw a picture for each problem and correctly label the dimensions of the figure. Write your final answer in an English sentence with proper units.

1. Find the perimeter of a rectangle with a length of 6 meters and a width of 3 meters.

2. Find the perimeter of a triangle with sides of length 5 feet, 12 feet, and 13 feet.

3. Find the circumference of circle with a diameter of 12 yards.

4. Find the area of a triangle with a base of 14 inches and a height of 8 inches.

5. Find the area of a rectangle with a length of 4 feet and a width of 3 feet.

6. Find the area of a circle with a diameter of 9 meters.

7. Find the volume of a sphere with a radius of 12 inches.

8. Find the volume of a cylinder with a height of 8 cm and a diameter of 6 cm.

9. Find the volume of a cone with a radius of 5 meters and a height of 16 meters.

10. A rectangular pool has a width of 40 feet and an area of 2480 square feet. What is the pool’s length?

11. Great white sharks have triangular teeth with a height of 6 centimeters and an area of 15 square centimeters. Find the length of the base of a tooth.

12. Which is a better buy: a large pizza with a 16-inch diameter for $12 or two small pizzas, each with a 10-inch diameter for $12?

13. A water reservoir is shaped like a rectangular solid with a base that is 50 yards by 30 yards, and a vertical height of 20 yards. At the start of a three-month period of no rain, the reservoir was completely full. At the end of this period, the height of the water was down to 6 yards. How much water was used in the three-month period?

14. How many plants spaced every 6 inches are needed to surround a square garden with a 15-foot side?

15. The tunnel under the English Channel that connects England and France is actually three separate tunnels built end to end. Each is a half-cylinder that is 50,000 meters long and 4 meters high. How many cubic meters of dirt had to be removed to build the tunnel?

16. Two cylindrical cans of soup sell for the same price. One can has a diameter of 6 inches and a height of 5 inches. The other has a diameter of 5 inches and a height of 6 inches. Which can is the better buy?
17. An architect designs a rectangular flower garden such that the width is exactly two-thirds of the length. If 260 feet of antique picket fencing are to be used, find the dimensions of the garden.

18. A flowerbed is in the shape of a triangle with one side twice the length of the shortest side, and the third side is 30 feet more than the length of the shortest side. Find the dimensions if the perimeter is 102 feet.

19. Piranha fish require 1.5 cubic feet of water per fish to maintain a healthy environment. Find the maximum number of piranhas you could put in a tank measuring 8 feet by 3 feet by 6 feet.

20. Find how much rope is needed to wrap around the Earth at the equator, if the radius of the Earth is 4000 miles. (Round to the nearest mile.)

21. If asphalt pavement costs $0.80 per square foot, find the cost to pave the circular road (the road is shaded) in the figure shown. (Round to the nearest cent.)

22. The lot in the figure shown, except for the house and driveway, is lawn. One bag of fertilizer costs $25 and covers 4000 square feet. Determine how many bags of fertilizer are needed to cover the entire lawn and find the cost of the fertilizer.

23. The length of a rectangular parking lot is 10 yards less than twice its width. If the perimeter of the lot is 400 yards, what are its dimensions?

24. An ice cream cone is 5 inches deep and has a radius of 1 inch. A spherical scoop of ice cream also has a radius of 1 inch. If the ice cream melts into the cone, will it overflow? Show your calculations for the volumes of the cone and the ice cream.