Questions

1. Find the area of a parallelogram whose altitude is 15 meters and whose base is 10 meters.

2. The perimeter of a parallelogram is 46 inches. If the length of one side is 14 inches, what is the length of the side adjacent to it?

3. Find the area of a circular sign whose radius is 7 ft.

4. The diameter of the planet Mercury is approximately 3032 miles. Find the distance around its equator.

5. The area of a trapezoid is 900 square inches. The bases are 40 inches and 50 inches. Find the altitude.

6. Each of the equal angles in an isosceles triangle is 4 times as large as the third angle. What is the measure of each angle?

7. Robbie has room for a storage cabinet that is 18 inches wide by 24 inches deep. If he calculates that he needs 15 cubic feet of storage space, how tall must the cabinet be?

8. A cement walkway is poured (see diagram). It consists of two rectangles and a quarter circle with a radius of 1.5 yards. How many square yards will the walkway be? If a painter paints it for $2.50 per square yard, how much will the painting cost?
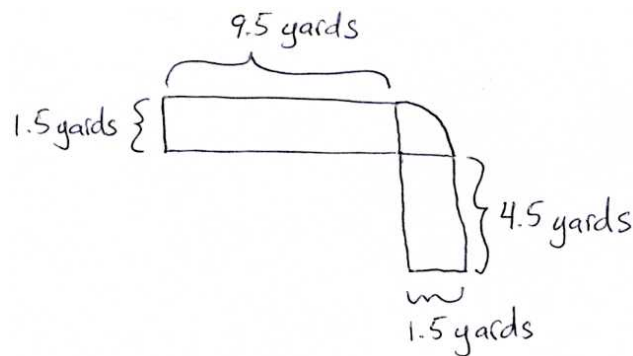
Solutions

Diagrams for the solutions.

1.
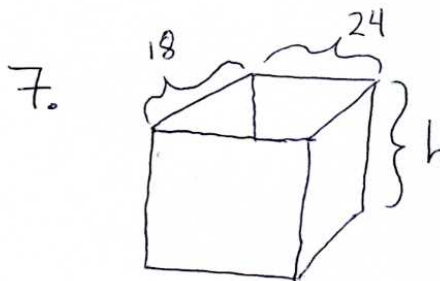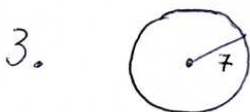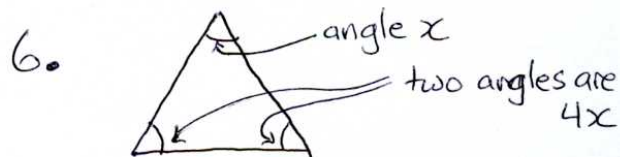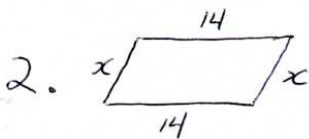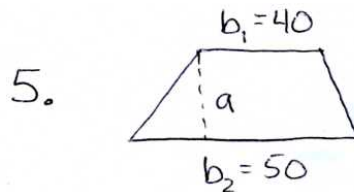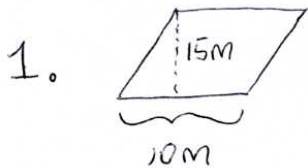
$$A = (\text{altitude})(\text{base})$$
$$= 15\text{m} \cdot 10\text{m}$$
$$= 150\text{m}^2$$

2.

$$P = \text{ sum of the four sides}$$
$$2x + 2(14) = 46$$
$$2x + 28 = 46$$
$$2x + 28 - 28 = 46 - 28$$
$$2x = 18$$
$$x = 9\text{inches}$$

3.

$$A = \pi r^2$$
$$\sim (3.14)(7\text{ft})^2$$
$$\sim 153.86\text{ft}^2$$

4. The diameter is 3032 miles, so radius is $3032/2 = 1516$ miles.

$$\text{Circumference} = 2\pi r$$
$$\sim 2(3.14)(1516 \text{ miles})$$
$$\sim 9520.48 \text{ miles}$$

5.

$$A = \frac{1}{2}a(b_1 + b_2)$$
$$900 \text{inches}^2 = \frac{1}{2}a(40 \text{ inches} + 50 \text{inches})$$
$$900 \text{inches}^2 = a(45 \text{ inches})$$
$$\frac{900 \text{inches}^2}{45 \text{ inches}} = a$$
$$20 \text{ inches} = a$$

6. Fact used: Sum of interior angles in triangle is 180 degrees.

$$4x + 4x + x = 180$$
$$9x = 180$$
$$x = \frac{180}{9} = 20 \text{ degrees}$$

7. Need to get units the same! There are 12 inches in a foot. So 18 inches $= 1.5$ feet, and 24 inches $= 2$ feet.

$$V = lwh$$
$$15 \text{ft}^3 = (1.5\text{ft})(2\text{ft})h$$
$$15 \text{ft}^3 = (3\text{ft}^2)h$$
$$\frac{15 \text{ft}^3}{3\text{ft}^2} = h$$
$$5\text{ft} = h$$

8. Use $r = 3.14$.

$$A = \text{rectangle} + \ 1/4 \text{ circle} + \ \text{rectangle}$$
$$= (9.5\text{yd})(1.5textyd) + \frac{1}{4}\pi(1.5\text{yd})^2 + (4.5\text{yd})(1.5\text{yd})$$
$$= 22.77\text{yd}^2$$

The cost to paint would be $\left(22.77\text{yd}^2\right) \cdot \left(\$2.50\frac{1}{\text{yd}^2}\right) = \$56.92$.