

You have **20 minutes** to complete this quiz. Do the following problems **on a separate piece of paper**. Please number each problem and clearly show your work. When possible, circle your answers. **Do not write answers on this page**. When you are finished, staple this page on **top**.

Solve each problem below. Be sure to follow the steps we discussed in class—write down your unknowns in words and choose a variable to represent them, write an equation, solve the equation, and answer in a complete sentence. You will lose points if you don't follow these steps.

1. Anne studied for her math test for 3 hours less than the number of hours Bob studied. John studied 4 hours more than Bob. Altogether, they studied a total of 25 hours. How many hours did each student study for the test?

$$x = \text{number of hours Bob studied}$$

$$x - 3 = \text{number of hours Anne studied}$$

$$x + 4 = \text{number of hours John studied}$$

$$x - 3 + x + x + 4 = 25$$

$$x = 8$$

Bob studied 8 hours, Anne studied 5 hours, and John studied 12 hours.

2. A rectangular banner has a length that is 4 meters more than twice the width. If the perimeter of the banner is 50 meters, find the length and the width of the banner.

$$x = \text{width (m)}$$

$$4 + 2x = \text{length (m)}$$

$$2(4 + 2x) + 2x = 50$$

$$x = 7$$

The width is 8 m and the length is 21 m.

3. A circular cylinder has a height of 2 feet and a radius of 3 feet. Find the volume of the cylinder. Use the approximation  $\pi \approx 3.14$ .

$$V = \text{volume (ft}^3\text{)}$$

$$V = (3.14)(3)^2(2)$$

$$V = 56.52$$

The volume is 56.52 cubic feet.

4. The area of a triangle is 60 square inches. Find the altitude of the triangle if the base measures 10 inches.

$$a = \text{altitude (in)}$$

$$60 = \frac{1}{2}(a)(10)$$

$$a = 12$$

The altitude is 12 inches.