**11.5 Do Now: Density & compound shapes**

1. A lamp fixture is in the shape of a triangular pyramid. It is 7.2 inches tall and the area of its base is 11.5 $in^2$. Find the volume of the fixture to the *nearest cubic inch*.

2. A marble statue has a volume of 1135 $in^3$. Find its weight, to the *nearest tenth of a pound*. (assume the density of marble is 1.57 *ounces* per cubic inch)

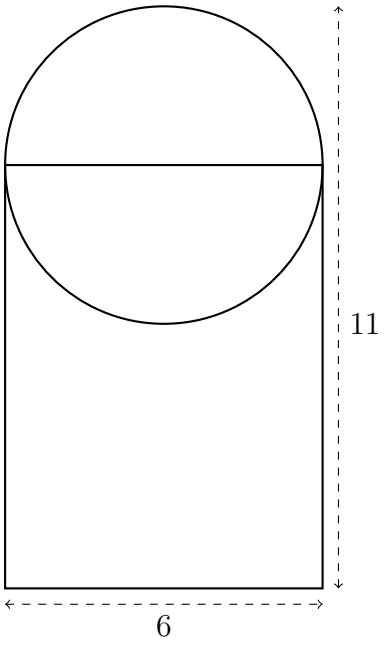
3. The area of the Bronx, NY is 42.47 square miles. Its population density is approximately 34,600 people per square mile. Estimate the population of the Bronx.

4. The volume of a cone is found to be 414.7 using the following formula:

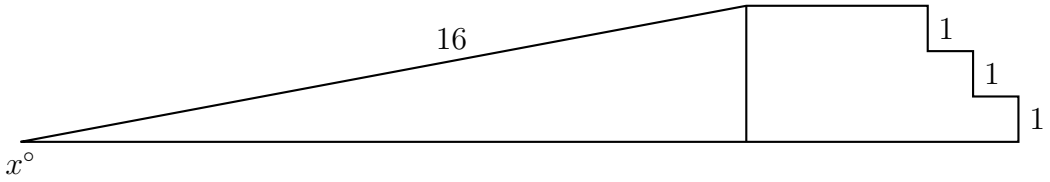
$$V = \frac{1}{3}\pi r^2 \times 11 = 414.7$$

What does the value 11 in the formula represent? Solve for the radius.

5. BECA middle schoolers draw a basketball key on the asphalt in chalk. It is rectangular with one end round. It is 6 feet wide and overall it is 11 feet long, as shown. Find the area of the chalked basketball key to the *nearest square foot*.




6. A wooden plank is laid on a brick platform. There are three steps leading to the platform, each 1 foot tall. The length of the plank is 16 feet. What is the angle of elevation, $x$, that the plank makes with the ground, to the *nearest degree*.



**11.5 Pop Quiz: Density & compound shapes**

1. A candle has the shape of a cone. It is 8.5 inches tall and the diameter of its base is 4 inches. Find the volume of the candle to the *nearest cubic inch*.

2. A bronz trophy has a volume of 520 $\text{cm}^3$. Find its weight, to the *nearest tenth of a kilogram*. (assume the density of bronz is 8.5 $grams/\text{cm}^3$)

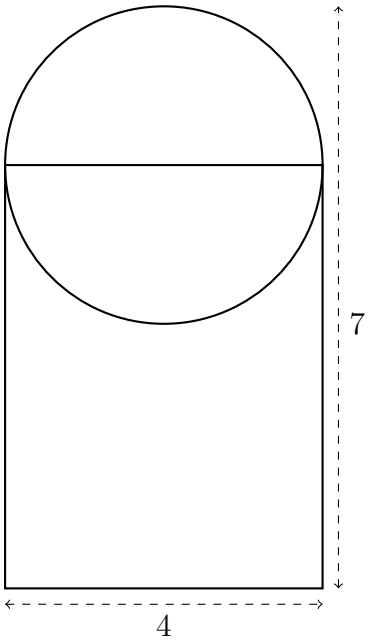
3. The area of the Manhattan, NY is 22.82 square miles. Its population density is approximately 73,000 people per square mile. Estimate the population of Manhattan.

4. The volume of a pyramid with a square base is found to be 245 using the formula:

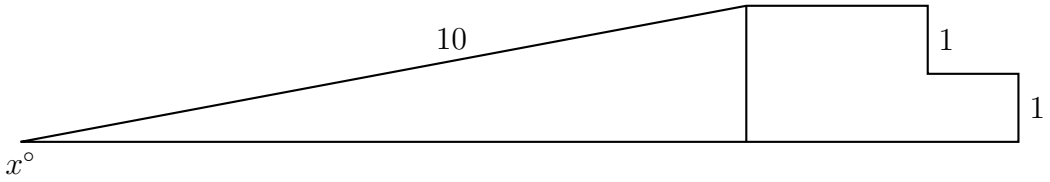
$$V = \frac{1}{3}x^2 \times 15 = 245$$

What does the value 15 in the formula represent? Solve for the length of the side of the square base.

5. Mott Hall fourth graders draw a basketball key on the asphalt in chalk. It is rectangular with one end round. It is 4 feet wide and overall it is 7 feet long, as shown. Find the area of the chalked basketball key to the *nearest square foot*.

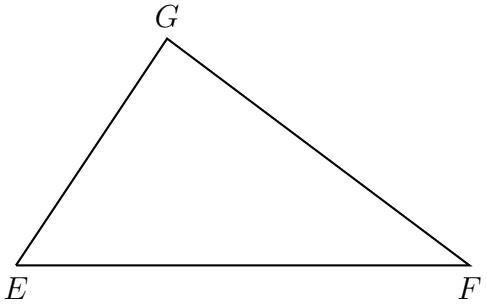



6. A wooden plank is laid on a brick platform. There are two steps leading to the platform, each 1 foot tall. The length of the plank is 10 feet. What is the angle of elevation, $x$, that the plank makes with the ground, to the *nearest degree*.

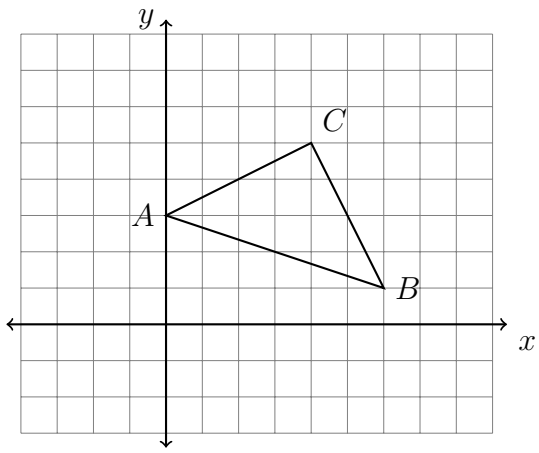


**11.5 Homework: Using slope and distance formulas**

1. Given right $\triangle EFG$ with $m\angle G = 90°$. If $\overline{FG} = 8$ and $\overline{EG} = 6$, find $\overline{EF}$.




2. In the diagram below, $\triangle ABC$ has vertices with coordinates $A(0, 3)$, $B(6, 1)$ and $C(4, 5)$.




Find the length of each side of $\triangle ABC$, showing that it is isosceles and not equilateral.

| $AC =$ | $BC =$ | $AB =$ |
|---|---|---|
| $\sqrt{(x_C - x_A)^2 + (y_C - y_A)^2}$ | $\sqrt{(x_C - x_B)^2 + (y_C - y_B)^2}$ | $\sqrt{(x_B - x_A)^2 + (y_B - y_A)^2}$ |