

Scales:

A *scale* is a ratio of measurements such as 1in:10ft.

A *scale drawing* is a **proportional** two dimensional drawing of a figure

To convert a scale drawing, we create a proportion (two equal fractions). The first fraction is the scale $\frac{\text{drawing}}{\text{actual}}$ Complete the proportion (two equal fractions) by substituting the known dimension (the drawing or the actual) in the corresponding part of the fraction to solve for the unknown dimension.

Example: A scale drawing of a classroom uses the scale 1in:15ft. If the length of the room is 2.5in, what is the actual length of the room?

$\frac{\text{drawing}}{\text{actual}} = \frac{1\text{in}}{15\text{ft}} = \frac{2.5\text{in}}{x\text{ft}}$ You can use equivalent fractions to solve, or cross multiply. $x = 15(2.5) = 37.5\text{ft}$

Find the circumference with a diameter of 4. Leave your answer in terms of π : $C = \pi d$ $C = \pi(4)$ $C = 4\pi$

Find the circumference of a circle with a radius of 5. Leave your answer in terms of π :

$$C = 2\pi r \quad C = 2\pi(5) \quad C = 10\pi$$

Area Formula:

$A = \pi r^2$ you must have the **radius**! When given the diameter, **cut the diameter in half first** to find the radius.

Find the area of a circle with a radius of 7. Leave your answer in terms of π :

$$A = \pi r^2 \quad A = \pi(7)^2 \quad A = 49\pi$$

*remember $r^2 = r(r)$

Find the area of a circle with a **diameter** of 12. Leave your answer in terms of π :

*if $d = 12$, **$r = 6$**

$$A = \pi r^2 \quad A = \pi(\mathbf{6})^2 \quad A = 36\pi$$

More Area Formulas for Composite Shapes

Semicircle: $A = \frac{1}{2} \pi r^2$

Square: $A = s^2$

Rectangle: $A = lw$ or bh

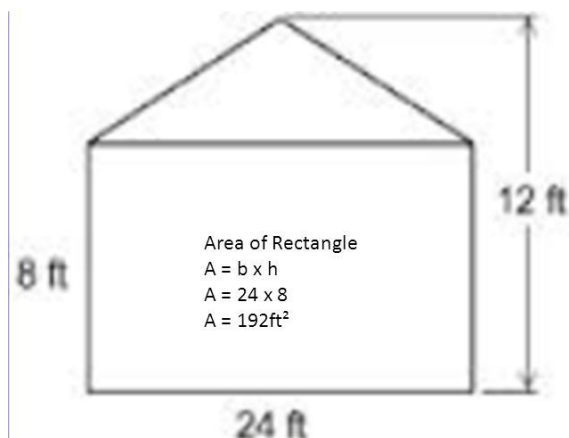
Triangle: $A = \frac{1}{2}bh$

Parallelogram: $A = bh$

Trapezoid: $A = \frac{1}{2} (b_1 + b_2)h$

Write down the formula for each shape when solving and plug in the given dimensions! Geometry becomes Algebra!

When finding the area of a **composite figure**, separate the figure into simple shapes you can find the area of and then add the areas together.



Area of Triangle
 $A = \frac{1}{2} \times b \times h$
 $A = \frac{1}{2} \times 24 \times 4$
 $A = 12 \times 4$
 $A = 48\text{ft}^2$

Area of Composite Figure
 $192\text{ft}^2 + 48\text{ft}^2 = 240\text{ft}^2$