How to Convert Measurement Units.
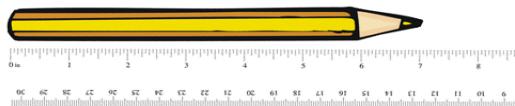
A pencil is 6 inches (in), how long is it in feet (ft)?

1. Find the conversion from the units you have to the units you need.

"1 foot (ft) = 12 inches (in)"

2. Represent this conversion as a unit rate.
(Units you are changing **to** at the top, **from** at the bottom):

$$\frac{1\ ft}{12\ in}$$

3. Cancel the units and multiply.
(Numerators times numerators, denominators times denominators)

$$\frac{6\ \cancel{in}}{1} \cdot \frac{1\ ft}{12\ \cancel{in}} = \frac{6\ ft}{12}$$

4. Simplify the fraction if possible.

$$\frac{6\ ft}{12} \div \frac{6}{6} = \frac{1}{2}\ ft$$

LENGTH

Customary	Metric
1 mile (mi) = 1,760 yards (yd)	1 kilometer (km) = 1,000 meters (m)
1 yard (yd) = 3 feet (ft)	1 meter (m) = 100 centimeters (cm)
1 foot (ft) = 12 inches (in.)	1 centimeter (cm) = 10 millimeters (mm)

WEIGHT AND MASS

Customary	Metric
1 ton (T) = 2,000 pounds (lb)	1 kilogram (kg) = 1,000 grams (g)
1 pound (lb) = 16 ounces (oz)	1 gram (g) = 1,000 milligrams (mg)

1. A broom is 1.5 meters long. How long is that in centimeters?

A) 0.15 cm
B) 1.5 cm
C) 15 cm
D) 150 cm

2. A butterfly measures 5 ½ centimeters from wingtip to wingtip. How long is that in millimeters?

A) 0.52 mm
B) 5.5 mm
C) 0.52 mm
D) 55 mm

3. Mr. Smith bought 2.5 pounds of coffee beans. He uses about 1 ounce to make coffee each day. How many ounces are in 2.5 pounds?

A) 0.16 oz
B) 25 oz
C) 40 oz
D) 400 oz

4. A kid's bicycle measures 2 meter, 40 centimeters long. How long is that in millimeters?

A) 40 mm
B) 240 mm
C) 400 mm
D) 2400 mm

## Finding a Missing Angle of a Triangle

To find a missing angle of a triangle we use the Triangle Postulate.

Triangle Postulate:
  The three angles inside a triangle allways add to 180°.

Start with 180° and subtract the other two angles. What remains is the measure of the third angle.
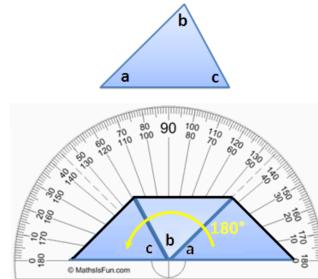
  Congruent means the same. If one angle is 80°, and the other two are congruent, then the other two angles must be 50°.
  (180 – 80 = 100, and 100 ÷ 2 = 50)

1. In triangle ABC, the measure of angle A is 75°, and the measure of angle B is 20°. What is the measure of angle C?

A) 85°
B) 95°
C) 105°
D) 180°

2. In triangle DEF, the measure of angle D is 60°. E is congruent to angle F. What is the measure of angle F?

A) 50°
B) 60°
C) 90°
D) 120°

Will Three Lengths Form a Triangle?

To find out if three lines can be used to form a triangle we check their lengths with the Triangle Inequality Theorem.

Triangle Inequality Theorem:
  The sum of the two shortest sides of a triangle must be greater than the longest side.

1) Add the lengths of the two shortest lines. If the sum is greater than the longest line, the can form a triangle
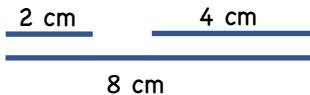
2 cm   4 cm
        8 cm

These lines cannot make a triangle
(2 cm + 4 cm is not more than 8 cm)
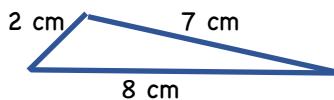
2 cm   7 cm
      8 cm

These lines can make a triangle
(2 cm + 7 cm is more than 8 cm)

3. Which of the following would form a triangle with the two existing sides of 4 inches and 6 inches?

A) 9 in
B) 11 in
C) 13 in
D) 15 in

4. Which set of side lengths will NOT form a triangle?

A) 9 in, 12 in, 18 in
B) 5 in, 8 in, 8 in
C) 3.5 in, 6.5 in, 10 in
D) 7.5 in, 10.5 in, 16.5