

# 3.1 CONVERSIONS

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## IMPERIAL CONVERSIONS

12 Inches	=	1 Foot
36 Inches	=	1 Yard
3 Feet	=	1 Yard
5280 Feet	=	1 Mile
1760 Yards	=	1 Mile

Example 1: "Convert 6 Feet into Inches"

**\*Whenever you convert, USE THIS PROCESS:**

$$\begin{array}{ccc} 6 \text{ Feet} & \times & \frac{\text{Inches (what I want)}}{\text{Feet (old units)}} \\ \text{(what I have)} & \text{(always multiply)} & \end{array}$$

**ALWAYS** what you WANT on the TOP, and what WAS on the bottom

**How many Inches are in a Foot? 12! – so let's add those numbers:**

$$6 \text{ Feet (have)} \quad \times \quad \frac{12 \text{ Inches (want)}}{1 \text{ Foot (old)}}$$

$$6 \times 12 \div 1 = 72$$

**72 Inches**

(Multiply the top, divide the bottom)

**Example 2: “Convert 396 Inches into Yards”**

$$396 \text{ Inches (have)} \quad X \quad \frac{\text{_____ Yards (want)}}{\text{_____ Inches (old)}}$$

How many Inches are in a Yard?

$$396 \text{ Inches} \quad X \quad \frac{1 \text{ Yard}}{36 \text{ Inches}}$$

$$396 \times 1 \div 36 = 11$$

**11 Yards**

**Example 3: “Convert 3.5 miles into inches”**

This will take TWO STEPS, since we don't have a direct conversion listed

$$3.5 \text{ Miles} \quad X \quad \frac{\text{_____ Feet}}{\text{_____ Miles}} \quad X \quad \frac{\text{_____ Inches}}{\text{_____ Feet}}$$

We have this conversion

$$3.5 \text{ Miles} \quad X \quad \frac{5280 \text{ Feet}}{1 \text{ Mile}} \quad X \quad \frac{12 \text{ Inches}}{1 \text{ Foot}}$$

$$3.5 \times 5280 \div 1 \times 12 \div 1$$

**221,760 inches**

Cop: “Do you know how fast you were going?”

Me: “221,760 inches per hour!”



## COSTS & CONVERSIONS

Example 5: "Rope costs \$3.49 per foot. You need 8 yards. Determine the cost.

\* I want to make the AMOUNT agree with the COST!

$$8 \text{ Yards (have)} \quad \times \quad \frac{3 \text{ Feet (want)}}{1 \text{ Yard (old)}}$$

$$8 \times 3 \div 1 = 24 = \mathbf{24 \text{ feet}}$$

$$24 \text{ feet} \times \$3.49 = \$83.76 \quad \boxed{\$83.76}$$

## ADDING FEET & INCHES

Feet = ' (one quote)

Inches = " (two quotes)

**Example 6:** 7'8" + 5'2"

← Add the feet and inches SEPARATELY

$$7' + 5' = \mathbf{12'}$$

$$8'' + 2'' = \mathbf{10''}$$

$$\boxed{\mathbf{12'10''}}$$

**Example 7:** 8'7" + 6'9"

$$8' + 6' = \mathbf{14'}$$

$$7'' + 9'' = 16''$$

$$(16'' = \mathbf{1'4''})$$

$$\boxed{\mathbf{15'4''}}$$

← Ok, but there are 12" in a foot – so ADD that 1 foot to the 14', and you have 4" left over.