

## Converting Units within the English System (Unity Fractions)

- We will use the conversion sheet to find convenient equivalencies of units we commonly convert between for other measurements besides length.


## Converting Units within the English System - Area <br> , Example: 6 sq ft = <br> $\qquad$ sq in

- Example: 2000 acres $=$ $\qquad$ sq mi


## Objectives

- Converting Other Units within the English System
- Converting Other Units within the Metric System
- Converting Other Units between the English and Metric System

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## Try Yourself

- 1) $45,000 \mathrm{lbs}=$ $\qquad$ tons
, 2) $540 \mathrm{in}=$ $\qquad$ yd
-3) $2.75 \mathrm{sq} \mathrm{ft}=$ $\qquad$ sq in


## Converting Units within the English System - Rates

, Recall: What operation does per mean?

- Example: 243 revolutions per min = $\qquad$ rev/sec
- Example: $70 \mathrm{mph}=$ $\qquad$ $\mathrm{ft} / \mathrm{sec}$



## Try Yourself

- Your MIG gas flow is set at 35 cubic feet per hour (CFH). What is the gas flow in cubic inches per second?


## Try Yourself

- 4) A sheet of metal is $4 \mathrm{ft}, 6$ in by $8 \mathrm{ft}, 2 \mathrm{in}$. Express the area of the sheet in square yards.


## The Metric System

- What are the base units for:
- Length:
- Weight:
- Volume:
, The Metric System is based on multiples of ten. See the chart of prefixes on your conversion sheet.
, There are also prefixes for extremely large and small measurements beyond kilo- and milli-, but we will focus on the unit closer to the base commonly used.


## Try Yourself

- 1) $58 \mathrm{~mm}=$ $\qquad$ $\mathrm{cm}=$ $\qquad$ m
-2) $350 \mathrm{~mL}=$ $\qquad$ L
-3) $\frac{3}{4} \mathrm{~kg}=$ $\qquad$ $g=$ $\qquad$ mg


## Converting Between the Metric and English Systems <br> , Example: 25 sq in= <br> $\qquad$ sq mm

, Example: $1 \mathrm{lb}, 12 \mathrm{oz}=$ $\qquad$ g

## Try Yourself <br> -1) $2 \mathrm{~L}=$ <br> $\qquad$ c

, 2) $100,000 \mathrm{cu} \mathrm{mm}=$ $\qquad$ cu in
3) $200 \mathrm{in} / \mathrm{min}=$ $\qquad$ $\mathrm{mm} / \mathrm{sec}$

## Converting Between the Metric and English Systems

- We'll use unity ratios with approximate equivalencies.
- Example: $45 \mathrm{~mm}=$ $\qquad$ in (to nearest $16^{\text {th }}$ )
- Example: $10 \mathrm{ft}=$ $\qquad$ m


## Converting Between the Metric and English Systems - Speed

, Example: Your job specifies that the wire feed speed on your welder needs to be set at $80 \mathrm{~mm} / \mathrm{sec}$. What should you set your welder at in in/min?
, Example: $75 \mathrm{ft} / \mathrm{min}=$ $\qquad$ $\mathrm{mm} / \mathrm{sec}$

## Converting Between the Metric and

 English Systems - Temperature- There are charts that can be used or the formulas:

$$
\begin{aligned}
& \mathrm{C}=\frac{5}{9}(\mathrm{~F}-32) \\
& \mathrm{F}=\frac{9}{5} \mathrm{C}+32
\end{aligned}
$$

- Example: $250^{\circ} \mathrm{F}=$ $\qquad$ ${ }^{\circ} \mathrm{C}$
- Example: $23^{\circ} \mathrm{C}=$ $\qquad$ ${ }^{\circ} \mathrm{F}$


