

# **UNITS OF MEASURE**

Study Island Help Session Lesson

10/6/14

# Convert Units

*In measurement problems, it is sometimes important to convert from one unit to another within a system.*

## UNITS OF LENGTH

Customary
12 inches = 1 foot
3 feet = 1 yard
5,280 feet = 1 mile
1,760 yards = 1 mile

Metric
1,000 millimeters = 1 meter
100 centimeters = 1 meter
10 millimeters = 1 centimeter
1 kilometer = 1,000 meters

### Example:

Convert 5 yards to feet.

### Solution:

Since 3 feet equals 1 yard, multiply 5 times 3 to find how many feet is equal to 5 yards.

$$5 \text{ yards} \times 3 \text{ feet per yard} = 15 \text{ feet}$$

So, **15 feet** is equal to 5 yards.

# Convert Units

*In measurement problems, it is sometimes important to convert from one unit to another within a system.*

## UNITS OF CAPACITY

Customary
8 fluid ounces = 1 cup
2 cups = 1 pint
2 pints = 1 quart
4 quarts = 1 gallon

Metric
1,000 milliliters = 1 liter

### Example:

Convert 16 cups to pints.

### Solution:

Since 1 pint equals 2 cups, divide 16 by 2 to find how many pints is equal to 16 cups.

$$16 \text{ cups} \div 2 \text{ pints per cup} = 8 \text{ pints}$$

So, **8 pints** is equal to 16 cups.

# Convert Units - Weight

*Use the customary and metric conversion charts below to convert weight measurements from one unit to another within the same measurement system.*

## Customary Units

$$\begin{aligned}1 \text{ ton} &= 2,000 \text{ pounds} \\1 \text{ pound} &= 16 \text{ ounces}\end{aligned}$$

## Metric Units

$$\begin{aligned}1 \text{ gram} &= 1,000 \text{ milligrams} \\1 \text{ kilogram} &= 1,000 \text{ grams}\end{aligned}$$

### Example 1:

Convert 1.375 kilograms to grams.

### Solution:

Use the following conversion factor to convert 1.375 kilograms to grams.

$$1 \text{ kg} = 1,000 \text{ g}$$

Multiply to convert from kilograms to grams.

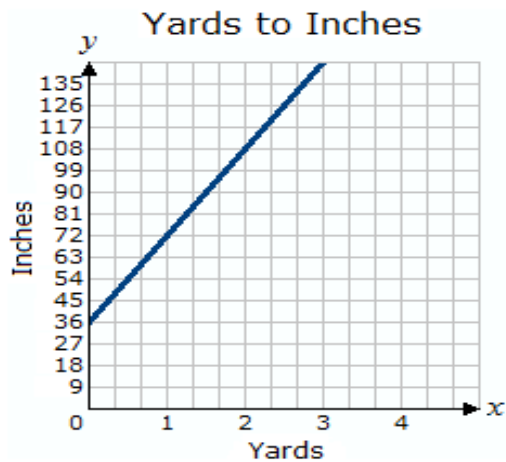
$$1.375 \text{ kg} \times \frac{1,000 \text{ g}}{1 \text{ kg}} = 1,375 \text{ g}$$

Therefore, 1.375 kilograms is equal to **1,375 grams**.

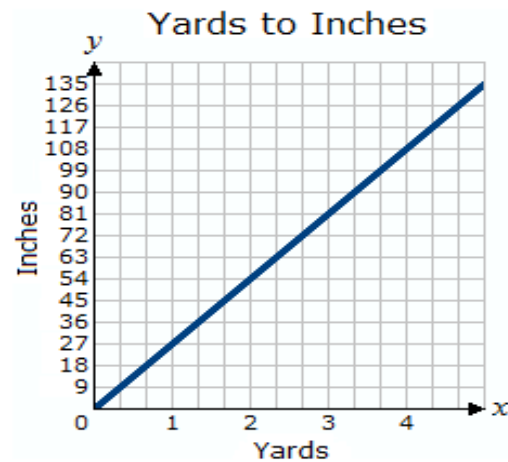
Use the table below to determine the relationship between yards and inches.

Yards	Inches
1	36
2	?
3	?
4	?

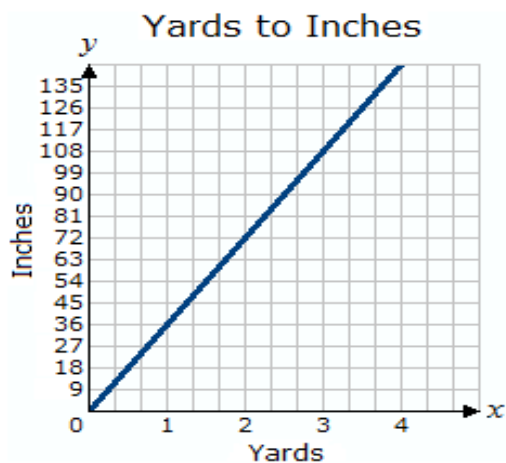
Which of the following graphs matches the relationship shown in the table?



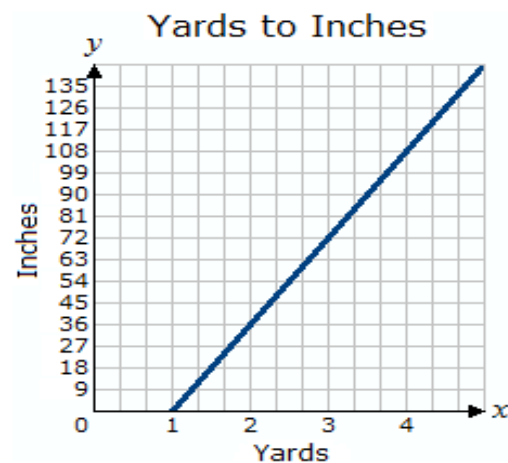
**W.**



**X.**



**Y.**



**Z.**

**Example:**

<b>Yards</b>	11	13
<b>Feet</b>	33	39

Which of the following tables represents a ratio which is greater than the ratio in the table above?

A.

<b>Quarts</b>	4	6
<b>Pints</b>	8	12

B.

<b>Weeks</b>	2	5
<b>Days</b>	14	35

**Solution:**

Determine the ratio of each table.

$$\frac{11 \text{ yd}}{33 \text{ ft}} = \frac{1}{3} \frac{\text{yd}}{\text{ft}}$$

$$\frac{4 \text{ qt}}{8 \text{ pt}} = \frac{1}{2} \frac{\text{qt}}{\text{pt}}$$

$$\frac{2 \text{ wk}}{14 \text{ days}} = \frac{1}{7} \frac{\text{wk}}{\text{days}}$$

Next, compare the ratios. Since all the ratios are unit fractions, the smallest denominator will be the largest fraction.

$$\frac{1}{7} < \frac{1}{3} < \frac{1}{2}$$

Therefore, the table with a ratio greater than the given table is table **A**.

# Let's Try One

6.

Cups	Gallons
32	2
?	3

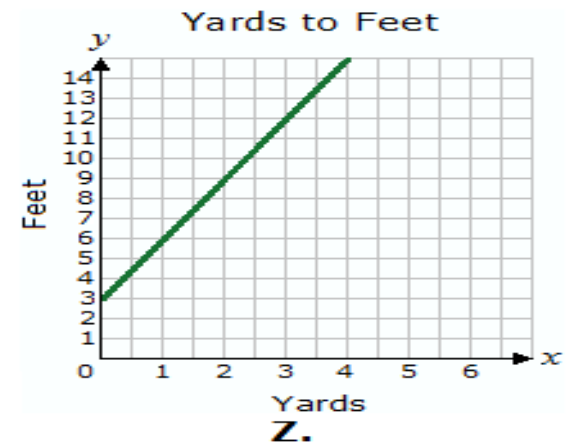
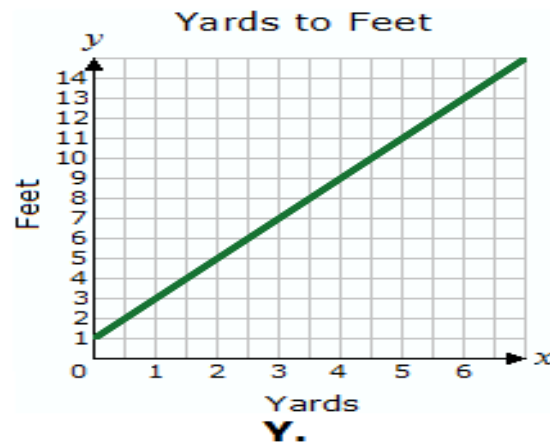
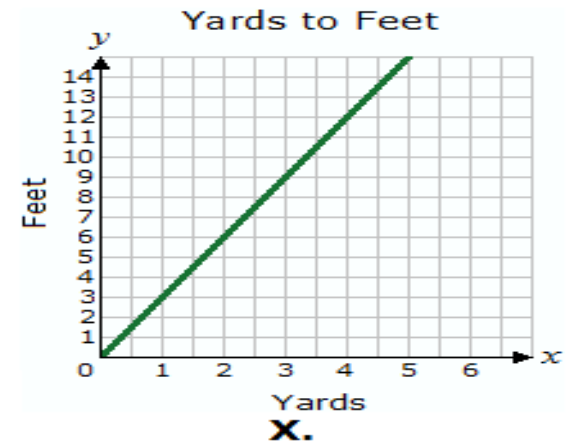
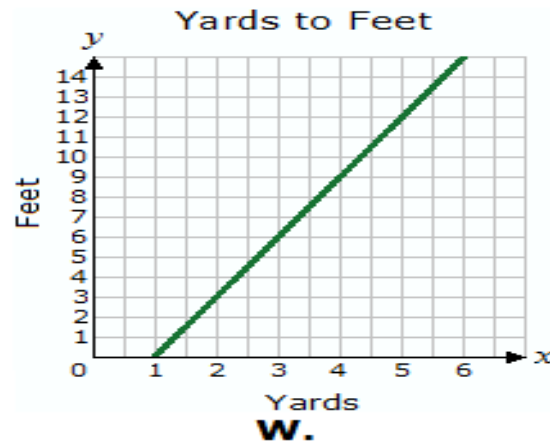
Which of the following is the missing value in the table above?

- A. 24
  - B. 48
  - C. 44
  - D. 52
-

7. Use the table below to determine the relationship between yards and feet.

Yards	Feet
1	3
2	?
3	?
4	?

Which of the following graphs matches the relationship shown in the table?





# DIRECTIONS:

- Complete Ten Questions in UNITS OF MEASURE
- You may use the help sheet provided! 😊
- Reread the questions and take your time!