

Projector Screen

Mr. Romano's
Desk

 Emmala Johnson	 Robbie Paul	 Emma Moore	 Matthew King	 Nathan Vice	
 Lauren McCorn	 Katelyn Higgins	 Kalee Page	 Jacob Houston	 William Morris	 Aidan Smith
 Anna Ferguson	 Bailey Yarbrough	 Jonah Murray	 Victor Hernandez	 Benjamin Simm	 Maximus Johns
 Chancellor Gor	 Rachel Collins	 Phillip Benford	 Cole McDermot	 Zacchaeus Hear	
 Savannah Thorn	 Chaz Bishop	 Brandon Edmo	 Matthew Dow	 Emory Elder	
 Hayden Day		 Bradley Quarles	 Matthew Martin		

Warmup:

7,200

How many seconds are in a day?

{ 60 sec in a min
60 min in an hour
24 hours in a day

$$\begin{array}{r} 60 \times 60 \\ \hline 3600 \times 24 \\ \hline 86,400 \end{array}$$

METRIC CONVERSION

**How to
convert
within
the
metric
system**



Do you remember...

**King
Henry?**



Learn the mnemonic:

**King Henry Died Unexpectedly
Drinking Chocolate Milk**



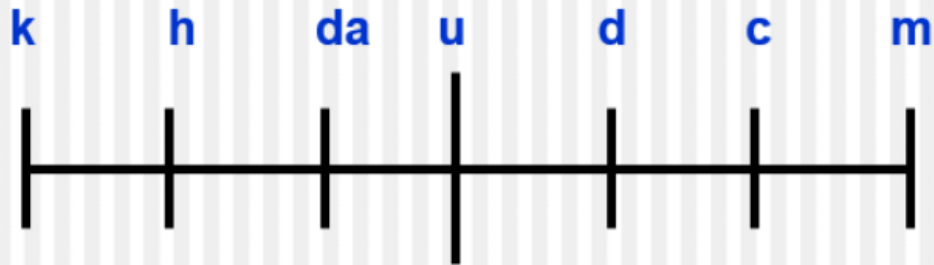
**Memorize
this!**

Metric Prefixes

Prefix	Symbol	Factor Number	Factor Word
kilo-	k	1000	Thousand
hecto	h	100	Hundred
deca	da or dk	10	Ten
unit	m, L, or g	1	One
deci	d	.1	Tenth
centi	c	.01	Hundredth
milli	m	.001	thousandth

Use the mnemonic:

Above the tick marks write the **first letter** for the words in the King Henry mnemonic:



RECALL: Metric Base Units

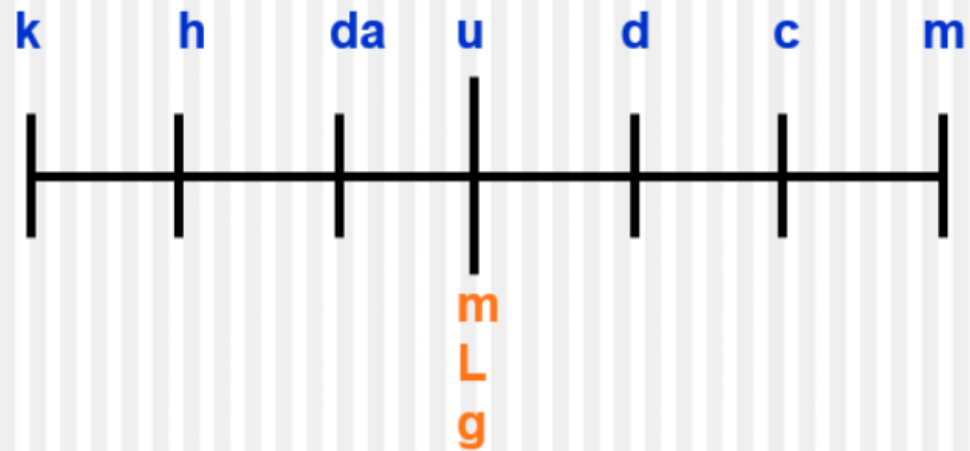
Meters are used to measure **length** and **distance**.

Liters are used to measure **volume** or the **capacity** of an object.

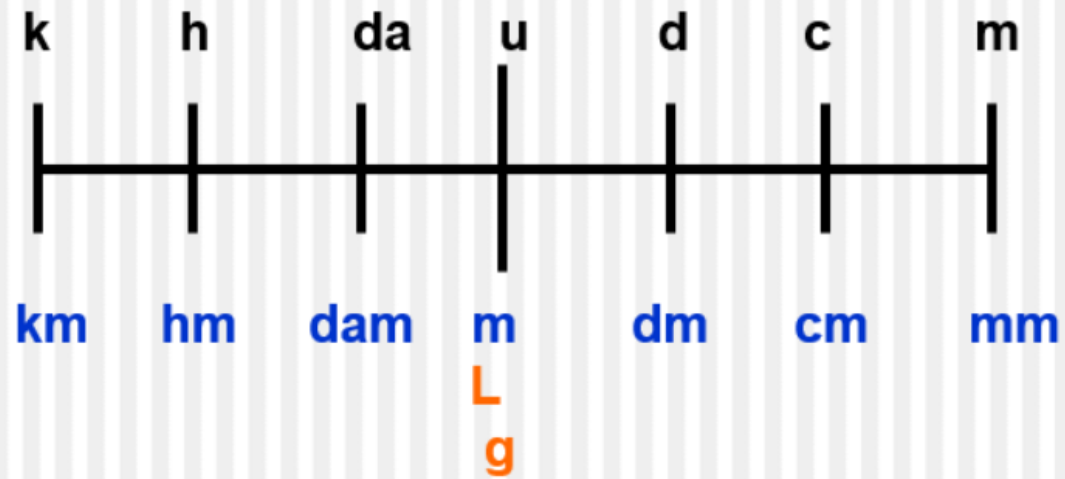
Grams are used to measure **mass** or the **weight** of an object.

Use the mnemonic:

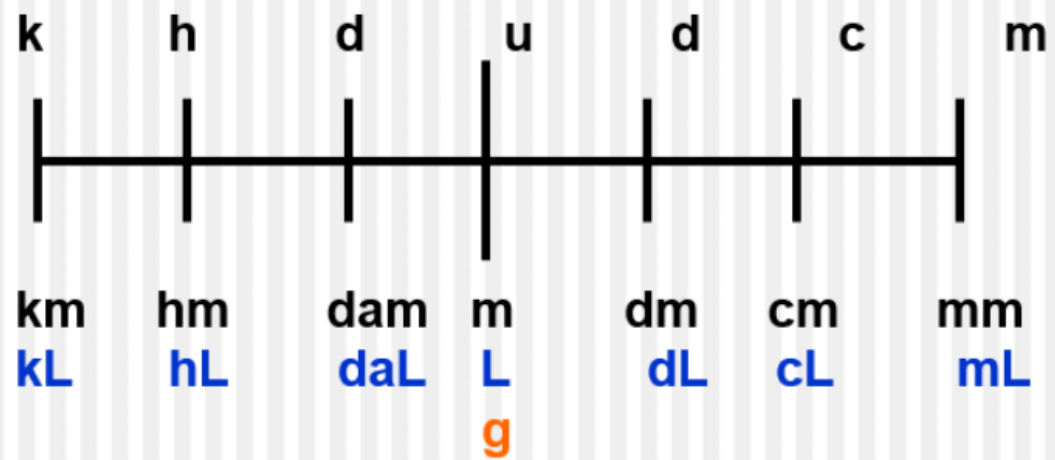
Write the units in the middle **under** the “U”.



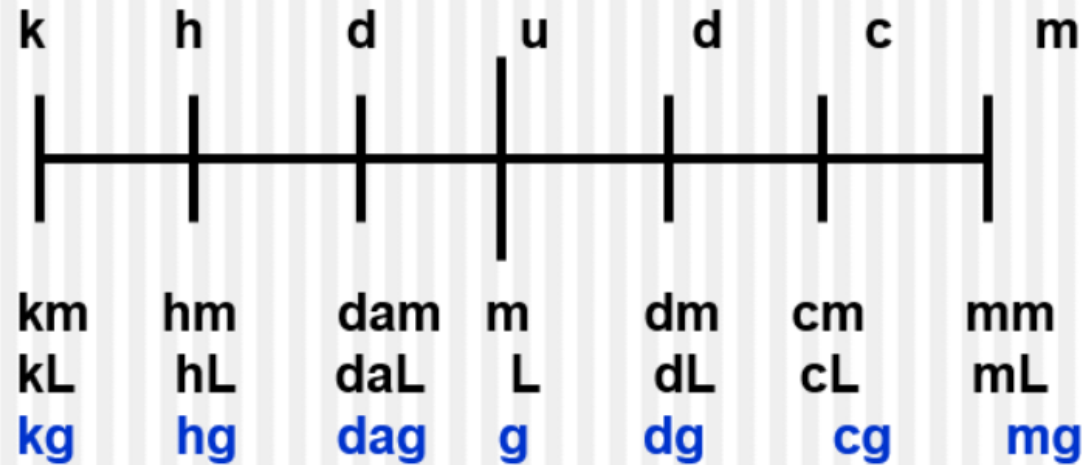
Let's add the meter line:



Let's add the **Liter** line:



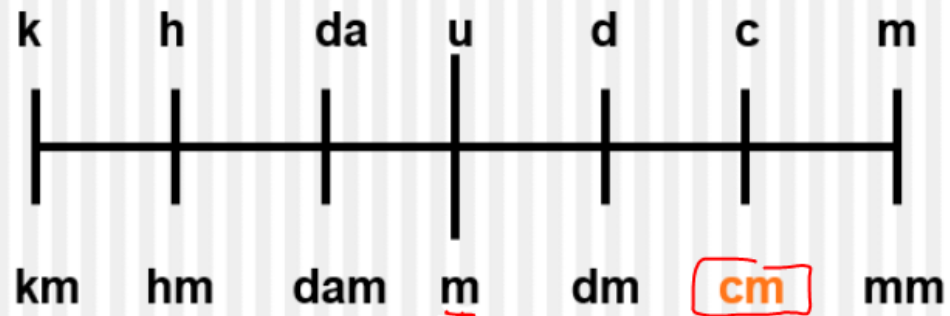
Let's add the gram line:



Example #1:

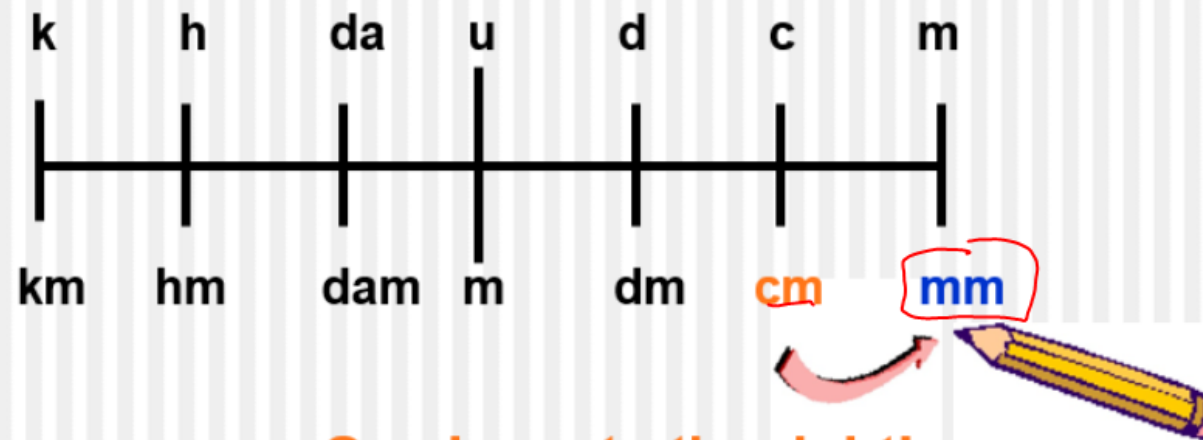
$$56 \text{ cm} = \underline{\quad\quad} \text{ mm}$$

Look at the unit given in the problem. **56 cm**
Put your pencil on **that unit**.



Example #1: $56 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$

Move to new unit, counting **jumps** and noticing the **direction** of the jump!



One jump to the right!

Example #1: 56 cm = _____ mm

Move **decimal** in original number the same # of **spaces** and in the same **direction**.

56.0



One jump
to the right!

Move **decimal** one jump to the right.
Add a **zero** as a placeholder.

Example #1:

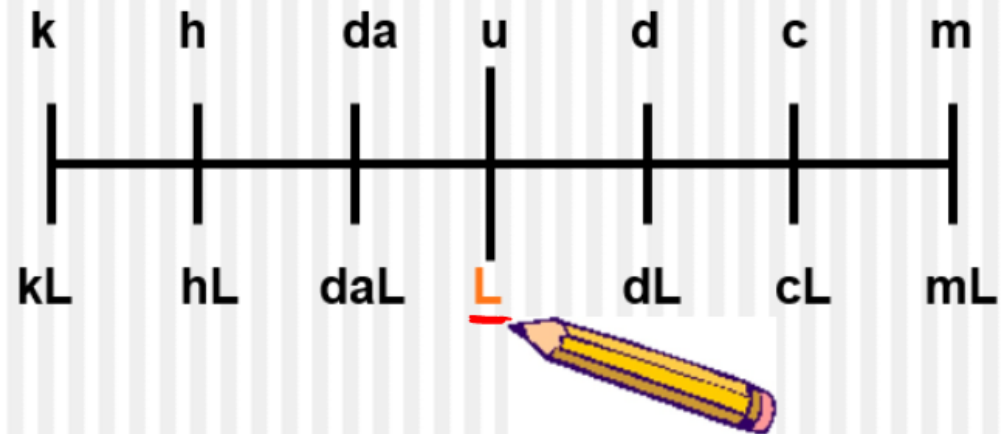
$$56 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$$

$$56 \text{ cm} = \underline{\underline{560 \text{ mm}}}$$

Example #2:

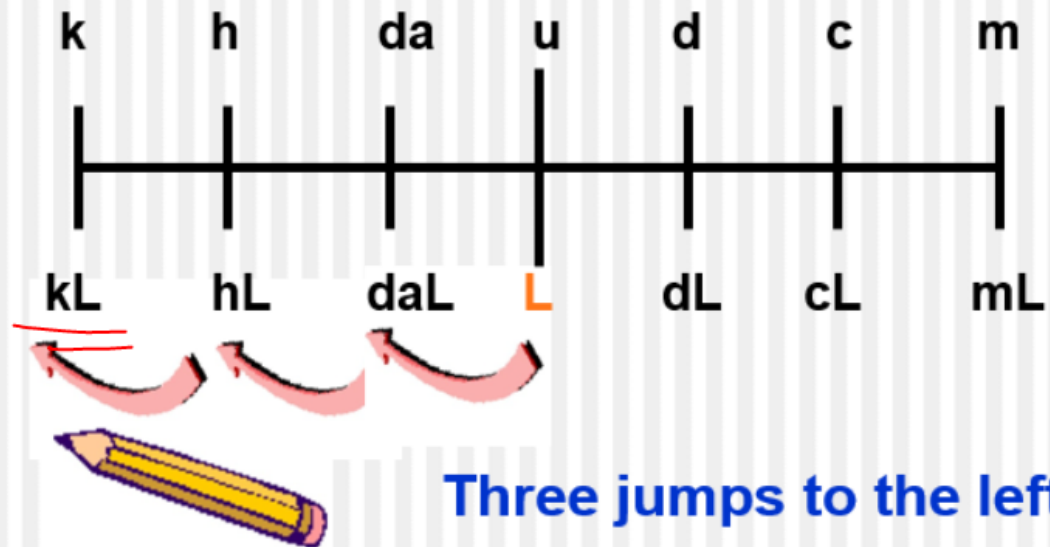
$$7.25 \text{ L} = \underline{\hspace{2cm}} \text{ kL}$$

Look at the unit that has a number. **7.25 L**
Put your pencil on **that unit**.



Example #2: $7.25 \text{ L} = \underline{\hspace{2cm}} \text{ kL}$

Move to new unit, counting **jumps** and noticing the **direction** of the jump!



Example #2: $7.25 \text{ L} = \underline{\hspace{2cm}} \text{ kL}$

Move **decimal** in original number the same # of **spaces** and in the same **direction**.

$$7.25 \text{ L} = \underline{\hspace{2cm}} \text{ kL}$$



.007.25

Three jumps
to the left!



Move **decimal** to the left three jumps.
Add two **zeros** as placeholders.

Example #2:

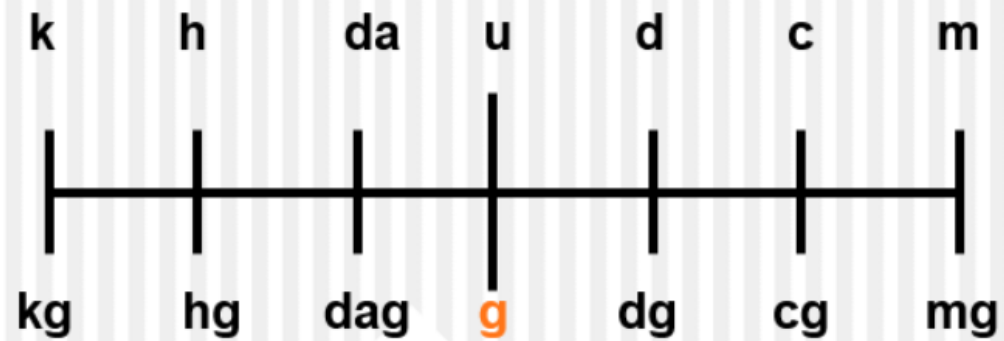
$$7.25 \text{ L} = \underline{\hspace{2cm}} \text{ kL}$$

$$7.25 \text{ L} = \underline{0.00725} \text{ kL}$$

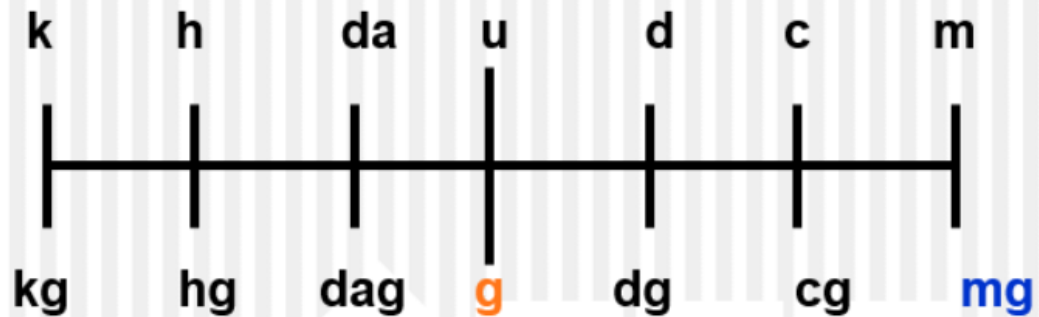
Example #3:

Try this problem on your own:

$$45,000 \text{ g} = \underline{\hspace{2cm}} \text{ mg}$$



Example #3: $45,000 \text{ g} = \underline{\hspace{2cm}} \text{ mg}$



Three jumps to the right!

45,000.000.

Example #3:

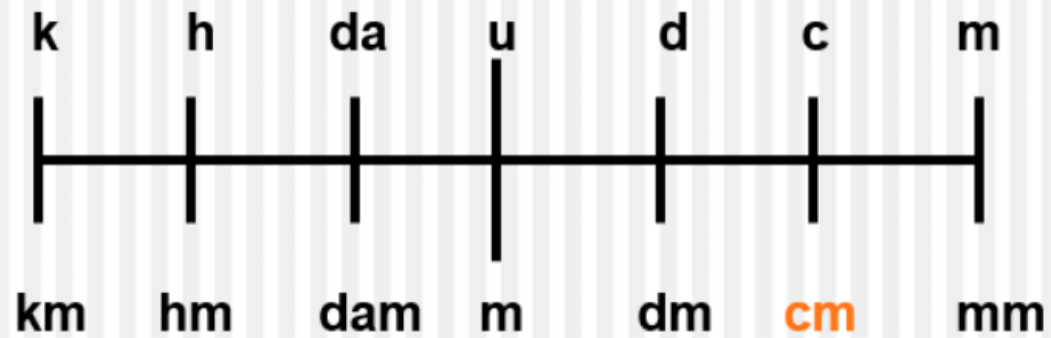
$$45,000 \text{ g} = \underline{45,000,000} \text{ mg}$$

Three jumps to the right!

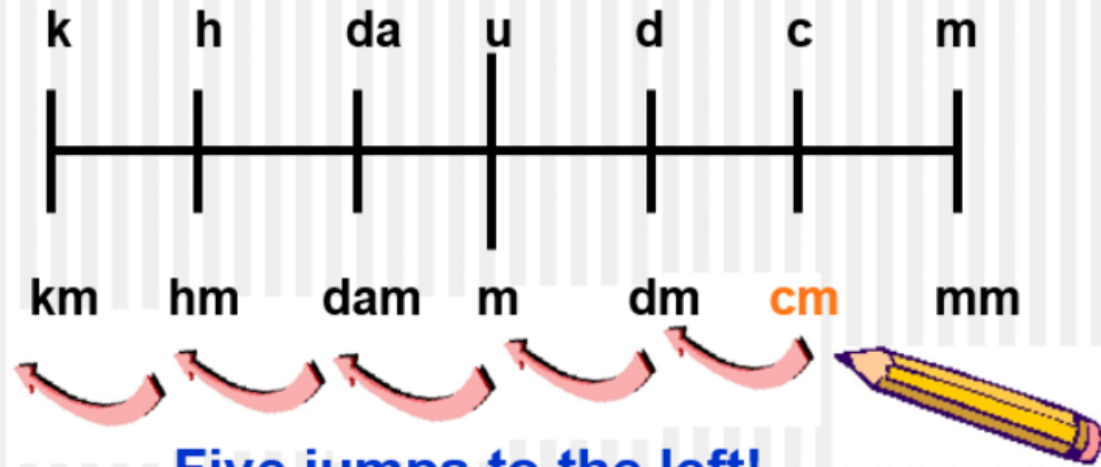
Example #4:

Try this problem on your own

$$5 \text{ cm} = \underline{\quad} \text{ km}$$



Example #4: 5 cm = _____ km



Five jumps to the left!

.00005.

Example #4:

$$5 \text{ cm} = 0.00005 \text{ km}$$

Five jumps to the left!

One last caution:

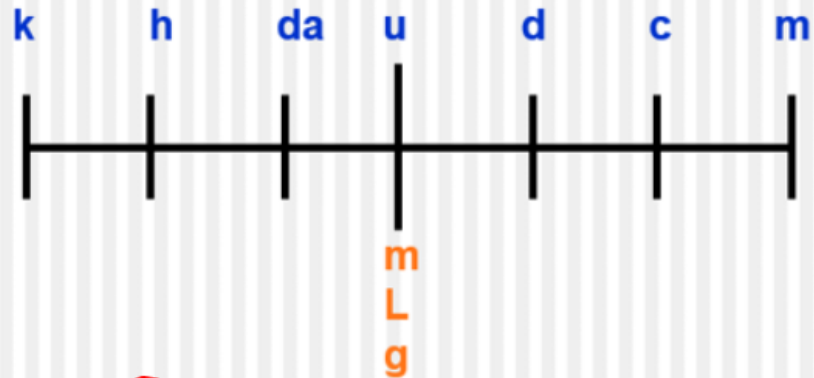
Be careful **NOT** to count the spot you start from, where you put your pencil point.

Only count the jumps!



Examples #5-9:

Try these on your own.



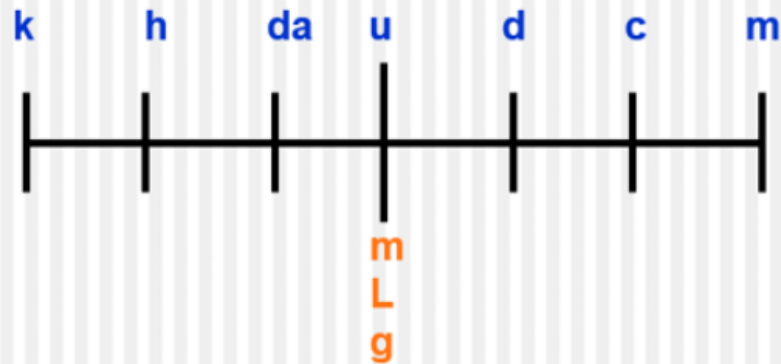
(5) $35 \text{ mm} = \underline{3.5} \text{ cm}$

(6) $14,443 \text{ L} = \underline{14.443} \text{ kL}$

(7) $0.00056 \text{ kg} = \underline{0.56} \text{ g}$

Examples #5-9:

Try these on your own.



(8) 35,400 mL = 35.4 L

(9) .000016 km = 16 mm

English Unit Conversions

- **Common Length Conversion Factors**
 - **5280 ft = 1 mile**
 - **12 in = 1 ft**
 - **3 ft = 1 yard**

Example 10: Convert 2 miles to ft

- $5280 \text{ ft} = 1 \text{ mile}$
- $12 \text{ in} = 1 \text{ ft}$
- $3 \text{ ft} = 1 \text{ yard}$

$$= \frac{2 \times 5280}{1} \text{ ft} = \frac{10560}{1}$$

10,560 ft

Example 11: Convert 7.5 yd to in

- **5280 ft = 1 mile**
- **12 in = 1 ft**
- **3 ft = 1 yard**

7.5 yd	3 ft	<u>12 in</u>	=	<u>7.5 × 3 × 12 in</u>
	1 yd	1 ft		

$$\frac{270}{1} = 270 \text{ in}$$

English Unit Conversions

- **Common Weight Conversion Factors**
 - 16 oz = 1 pound
 - 2000 lb = 1 ton

Example 12: Convert 9000 lb to tons

- **Common Weight Conversion Factors**

- 16 oz = 1 pound

- 2000 lb = 1 ton

$$\frac{9000 \cancel{\text{lb}}}{2000 \cancel{\text{lb}}} = \frac{9000}{2000} \text{ tons}$$

The diagram shows a fraction with 9000 lb in the numerator and 2000 lb in the denominator. Red arrows indicate the cancellation of the lb units. The result is a fraction of 9000 over 2000, followed by the word "tons".

4.5 T

English Unit Conversions

- **Common Volume Conversion Factors**
 - 8 oz = 1 cup
 - 2 cups = 1 pint
 - 2 pints = 1 quart
 - 4 quarts = 1 gallon

Example 13: Convert 3 quarts to pints

- **Common Volume Conversion Factors**

- 8 oz = 1 cup
- 2 cups = 1 pint
- 2 pints = 1 quart
- 4 quarts = 1 gallon

$$\begin{array}{|c|c|}
 \hline
 3 \text{ qt} & 2 \text{ pints} \\
 \hline
 & 1 \text{ qt} \\
 \hline
 \end{array} = \underline{\underline{6 \text{ pints}}}$$

English Unit Conversions

- **Common Time Conversion Factors**

- 60 sec = 1 minute
- 60 min = 1 hour
- 24 hr = 1 day
- 7 days = 1 week
- 52 weeks = 1 year
- 12 months = 1 year

Example 14: Convert 3 days to minutes

- **Common Time Conversion Factors**

- 60 sec = 1 minute
- 60 min = 1 hour
- ★ 24 hr = 1 day ★
- 7 days = 1 week
- 52 weeks = 1 year
- 12 months = 1 year

3 days	24 hrs	60 min	=
	1 day	1 hr	

$$3 \times 24 \times 60 \text{ min}$$

$$4,320 \text{ min}$$

Examples #15-20:

Try these on your own.

(15) 16 pts = 2 gal

(16) 24,000 lb = 12 T

$$\frac{24000 \text{ lbs}}{2000 \text{ lbs}} = 12$$

(17) 4.5 days = 108 hr

- 16 oz = 1 pound
- 2000 lb = 1 ton

- 5280 ft = 1 mile
- 12 in = 1 ft
- 3 ft = 1 yard

- 8 oz = 1 cup
- 2 cups = 1 pint
- 2 pints = 1 quart
- 4 quarts = 1 gallon

- 60 sec = 1 minute
- 60 min = 1 hour
- 24 hr = 1 day
- 7 days = 1 week
- 52 weeks = 1 year
- 12 months = 1 year

Examples #15-20:

Try these on your own.

(18) 5 miles = 26,400 ft

(19) 504 hr = 3 weeks

(20) 17 cups = 8.5 pt

$$\left| \begin{array}{l} 17 \text{ cups} \\ \hline 2 \text{ cups} \end{array} \right| = \frac{17}{2}$$

▪ 16 oz = 1 pound

▪ 2000 lb = 1 ton

▪ 5280 ft = 1 mile

▪ 12 in = 1 ft

▪ 3 ft = 1 yard

▪ 8 oz = 1 cup

▪ 2 cups = 1 pint

▪ 2 pints = 1 quart

▪ 4 quarts = 1 gallon

▪ 60 sec = 1 minute

▪ 60 min = 1 hour

▪ 24 hr = 1 day

▪ 7 days = 1 week

▪ 52 weeks = 1 year

▪ 12 months = 1 year

Length	Weight	Volume	Time
12 inches = 1 foot	16 ounces = 1 pound	2 cups = 1 pint	60 seconds = 1 minute
3 feet = 1 yard	2000 pounds = 1 ton	2 pints = 1 quart	60 minutes = 1 hour
5,280 feet = 1 mile		4 quarts = 1 gallon	24 hours = 1 day
1,760 yard = 1 mile			7 days = 1 week
			52 weeks = 1 year

21. I biked 8.5 miles and my friend biked 36,960 ft. Who biked the **longer** distance?

I did!

Prove your answer:

$$\begin{array}{|c|c|}
 \hline
 8.5 \text{ mi} & 5280 \text{ ft} \\
 \hline
 & 1 \text{ mi} \\
 \hline
 \end{array}
 = 44,880 \text{ ft}$$

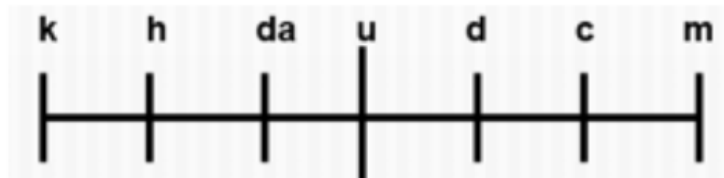
Length	Weight	Volume	Time
12 inches = 1 foot	16 ounces = 1 pound	2 cups = 1 pint	60 seconds = 1 minute
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5,280 feet = 1 mile		4 quarts = 1 gallon	24 hours = 1 day
1,760 yard = 1 mile			7 days = 1 week
			52 weeks = 1 year

22. I need 4 m of cloth to make a blue blanket and 360 cm to make a red blanket. Which blanket is **shorter**?

Red

3.6 m

Prove your answer:



Length	Weight	Volume	Time
12 inches = 1 foot	16 ounces = 1 pound	2 cups = 1 pint	60 seconds = 1 minute
3 feet = 1 yard	2000 pounds = 1 ton	2 pints = 1 quart	60 minutes = 1 hour
5,280 feet = 1 mile		4 quarts = 1 gallon	24 hours = 1 day
1,760 yard = 1 mile			7 days = 1 week
			52 weeks = 1 year

23. In June my air conditioner ran for a total of 156 hours. In July my air conditioner ran for 6.5 days. Was my bill the **same** for each month? *Yes*

Prove your answer:



$$\frac{156}{24} = \underline{6.5 \text{ days}}$$

HW #1: Dimensional Analysis