



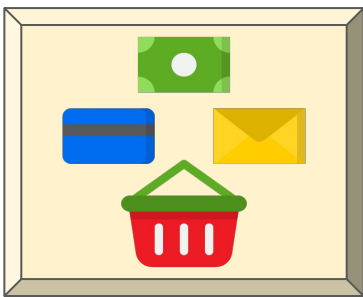
Helping With Math

Converting Like Measurement Units

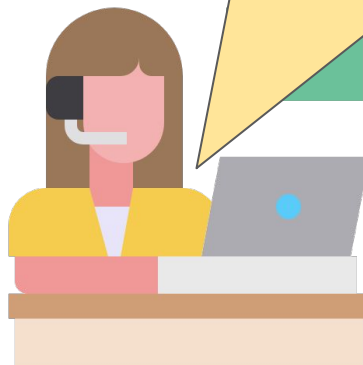
GRADE 5



There are two primary systems of measurements. Customary system and metric system. The customary system is the system of measurement primarily used in the United States while the metric system is the system of measurement commonly used in science.



Welcome to HWM Customer Service! My name is Emily. I am going to assist you in understanding measurement units.



**Meters to centimeters?
Kilograms to grams?
Pounds to grams?
Liters to gallons?**



CUSTOMARY SYSTEM

The Customary System of Measurement

- The customary system of measurement, also known as the U.S. Customary System, is based on the English system of measurement.
- In mathematics context, the customary system refers to a set of weights and measures used for measuring length, weight, capacity and temperature.

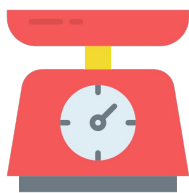


The customary system for length and distances are measured in inches, feet, yards and miles.

CUSTOMARY UNIT	CUSTOMARY EQUIVALENT
1 inch (in)	---
1 foot (ft)	12 inches
1 yard (yd)	3 feet
1 mile (mi)	1760 yards



CUSTOMARY SYSTEM



The U.S. customary weight measurement units are ounces, pounds, and tons.

CUSTOMARY UNIT	CUSTOMARY EQUIVALENT
1 ounce (oz)	16 drams
1 pound (lb)	16 ounces
1 ton (t)	2000 pounds



The U.S customary capacity or volume measurement units are ounces, cups, pints, quarts, and gallons.

CUSTOMARY UNIT	CUSTOMARY EQUIVALENT
1 fluid ounce	2 tablespoons
1 cup	8 fluid ounces
1 pint	2 cups
1 quart	2 pints
1 gallon	4 quarts



METRIC SYSTEM

The Metric System of Measurement

- This system of measurement is being considered as the international decimal system of weights and measures, based on the metre for length and the kilogram for mass.
- It is commonly used in France in 1795 and is now used officially in almost all nations in the world.



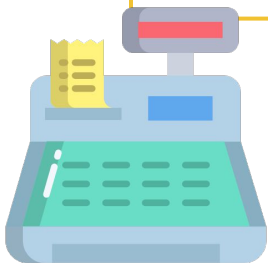
Length	Weight	Volume
1 km = 1,000 m	1 kg = 1,000 g	1 kL = 1,000 L
1 m = 0.001 km	1 g = 0.001 kg	1 L = 0.001 kL
1 m = 100 cm	1 g = 100 cg	1 L = 100 cL
1 cm = .01 m	1 cg = 0.01 g	1 cL = 0.01 L
1 m = 1, 000 mm	1 g = 1,000 mg	1 L = 1,000 mL
1 mm = 0. 001 m	1 mg = 0.001 g	1 mL = 0.001 L



THE TWO SYSTEMS

Here's a copy of customary-metric conversion chart.

Customary Unit	Metric Unit
1 inch	25.4 millimeters
1 foot	30.48 centimeters
1 yard	0.91 meter
1 mile	1.61 kilometers
1 teaspoon	4.93 milliliters
1 cup	0.24 liter
1 pint	0.47 liter
1 quart	0.95 liter
1 gallon	3.79 liters
1 ounce	28.35 grams
1 pound	0.45 kilogram



CONVERTING MEASUREMENTS

How to Convert Larger Units to Smaller Units?

- In converting larger units to smaller units, we multiply the number of larger units by the conversion factor for the appropriate smaller units.

Examples:



1. What is the equivalent of 3.5 ft in inches?

SOLUTION:

Conversion Factor: 1 foot = 12 inches.

$$= 3.5 \times 12 \text{ inches}$$

$$= (3.5 \times 12) \text{ inches}$$

$$= 42 \text{ inches}$$

Thus, there are 42 inches in 3.5 feet.

2. How many ounces are there in 34 lbs?

SOLUTION:

Conversion Factor: 1 lb = 16 oz..



CONVERTING MEASUREMENTS

$$= 34 \times 16 \text{ oz}$$

$$= (34 \times 16) \text{ oz}$$

$$= 42 \text{ inches}$$

Thus, there are 544 oz in 34 lbs.



3. 98 gallons = _____ pints

SOLUTION:

Conversion Factor: 1 gallon = 4 quarts
1 quart = 2 pints

$$= 98 \times 4 \text{ quarts}$$

$$= (98 \times 4) \text{ quarts}$$

$$= 392 \text{ quarts}$$

$$= 392 \times 2 \text{ pints}$$

$$= (392 \times 2) \text{ pints}$$

$$= 784 \text{ pints}$$

Thus, 98 gallons = 784 pints

4. 0.95 kg = _____ g

SOLUTION:

Conversion Factor: 1 kg = 1000 g

$$= 0.95 \times 1000 \text{ g} = (0.95 \times 1000) \text{ g}$$

$$= 950 \text{ g (just move the decimal point to the right)}$$

Thus, 0.95 kg = 950 g.



CONVERTING MEASUREMENTS

How to Convert Smaller Units to Larger Units?

- In converting smaller units to larger units, we **divide** the number of smaller units by the conversion factor for the appropriate larger units.

Examples:

1. What is the equivalent of 40 ft in yards?

SOLUTION:

Conversion Factor: 1 yard = 3 ft

$$= 40 \div 3 \text{ yd}$$

$$= (40 \div 3) \text{ yd}$$

$$= 13.33 \text{ yd}$$

Thus, there are 13.33 yards in 40 feet.

2. 450 lbs = _____ tons

SOLUTION:

Conversion Factor: 1 ton = 2000 pounds

$$= 450 \div 2000 \text{ tons} \quad = (450 \div 2000) \text{ tons}$$

$$= 0.225 \text{ tons}$$

Thus, 450 lbs = 0.225 tons



CONVERTING MEASUREMENTS

3. How many cups of buttermilk are there in 3500 teaspoons of the same liquid?

SOLUTION:

Conversion Factor: 1 cup = 8 fluid ounces
1 fluid ounce = 2 teaspoons

$$= 3500 \div 2 \text{ fluid ounces}$$

$$= (3500 \div 2) \text{ fl. oz}$$

$$= 1,750 \text{ fl. Oz.}$$

$$= 1,750 \div 8 \text{ cups}$$

$$= (1,750 \div 8) \text{ cups}$$

$$= 218.75 \text{ cups}$$

Thus, there are 218.75 cups in 3500 teaspoons of buttermilk.

4. A huge water tank can handle 187, 710 mL of water. If you wish to convert it to liters, how much would its equivalent be?

SOLUTION:

Conversion Factor: 1 liter = 1000 mL

$$= 187, 710 \div 1000 \text{ liters}$$

$$= (187, 710 \div 1000) \text{ liters}$$

$$= \mathbf{187. 71 \text{ L}}$$



PRACTICE EXERCISES

Convert the following to its desirable unit.

1. How many yards are there in 5 miles?

2. What is the equivalent of 1200 cm to meters?

3. If there are 3000 fl oz in a container, what is its equivalent number of cups?

3. A 2500-lb of meat is equivalent to how many kilogram?



TABLE OF ACTIVITIES

1. Online Shopping Sale
2. E-Commerce At Your Service
3. Add To Cart Promo
4. Black Friday Sale
5. Orders Received
6. Cashless Payment
7. Discount Vouchers
8. Customer Service Call
9. Cyber Monday
10. Cargo on Shipped



ONLINE SHOPPING SALE

Participate on this online shopping sale and get a lot of discounts! You only need to tell which among these statements are **TRUE** or **FALSE**. Write your answer on the space provided.

The customary system is the system of measurement primarily used in the United States.

1. _____

The metric system is the international decimal system of measurement.

2. _____

One meter of rope is equivalent to 0.01 kilometers of it.

3. _____

Between yards and inches, it is more appropriate to use the first when measuring small objects.

4. _____

Between miles and centimeters, it is more appropriate to use the first when measuring long distances.

5. _____



E-COMMERCE AT YOUR SERVICE

E-commerce is at your service for your orders this year! Experience it now by converting the following customary unit of measurements for length into its desired units.

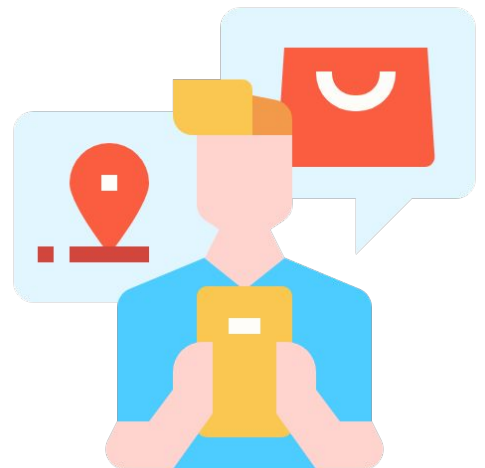
1. How many inches are there in 40 yards?

2. Find the equivalent of 15.5 yards in feet.

3. If something measures 82.3 inches, then how many feet would it be equal to?

4. Express 4500 yards in miles.

5. Convert 5 miles in inches.



ADD TO CART PROMO

Don't miss out the add to cart promo tonight. Avail it by computing these customary units for weight.

4. Convert 3.52 tons in lbs.



3. If the weighing scale reads 120 lbs, what is its equivalent in drams?



2. A bunch of objects weigh 45 lbs. What is its equivalent in oz.?

1. How many drams are there in 62 ounces?



BLACK FRIDAY SALE

It's Black Friday Sale. Hurry and place your orders by finding desired customary units of measurements for volume.



1. How many tablespoons are there in 105. 2 fl. Oz.?
2. What is the equivalent of 300 pints in fluid ounces?
3. Calculate the number of quarts in 70 gallons of water.
4. How many pints are there in 370 fluid ounces?

1.

2.

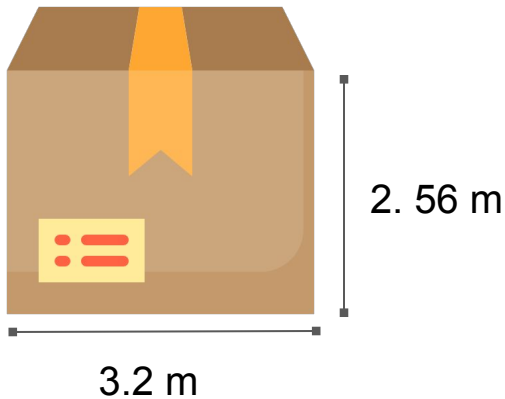
3.

4.



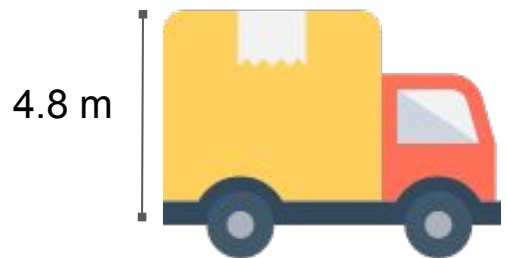
ORDERS RECEIVED

Yehey! Orders received! But wait, convert first these metric units of measurement for length.



1. What is the area, in sq. cm of the given face of the box?

2. How tall is the back of the cargo truck in km?



3. If the truck had travelled 3.5 km to deliver your parcel, what is the equivalent distance travelled in cm?



CASHLESS PAYMENT

Use this cashless payment to purchase your orders by solving these given about metric unit for weight.

1. Convert 450 cg to g

2. $923.5 \text{ g} = ?? \text{ kg}$



3. How many g are there in 35 kg?

4.. Convert 389.2 mg to g

5. If the parcels weigh 812 g, 1.5 kg, and 10,000 mg, what is the total weight of the three items in g?



DISCOUNT VOUCHERS

Discount vouchers are now available if you manage to solve the following about metric units for volume.

1. 11, 432 mL = _____ cL

4. 23.5 cL = _____ mL

2. 190 cL = _____ kL

5. 19.72 kL = _____ cL

3. 14 L = _____ mL

6. 300 mL = _____ L

CASH

BACK

%

=

\$

CASH

BACK



CUSTOMER SERVICE CALL

These customer service calls are inquiries about conversion of customary units to metric units and vice versa. Go and help these agents!

1. What is the equivalent of 12 feet in centimeters?

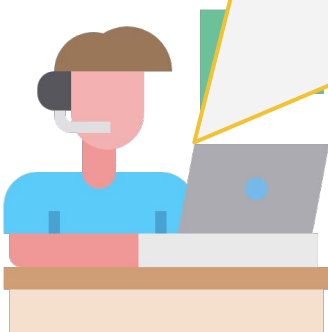
2. How many pints are there in 90 L of soda?

3. Convert 15 yards to meters.

4. How many km are there in 5 miles?

5. 27 oz is equal to how many grams?

6. Convert 110 lbs in kg.



CYBER MONDAY

This is the last Monday for Flash Sale! Read and answer these word problems. Don't forget to show your complete solution.

1. You need a special kind of rope that measures 14.75 yards. If it costs \$ 0.25 per inch, how much should you pay?

2. A huge water tank can hold 357 gallons of liquid, how long will it take to drain everything if it releases 1.5 L per minute,



3. A 500-lb of flour is on sale for \$250. If that is the case, approximately, how much is the kilogram of flour?

4. A car consumes 0.5 liters of gasoline in every mile travelled. How much liters of gasoline is needed for a 5-km drive?

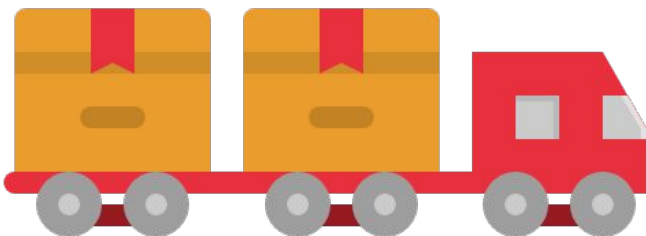


CARGO ON SHIPPED

These cargos are now being shipped. To receive them in good condition, answer the following word problems.

1. A truck can load 500 tons of items. What is its equivalent to pounds?

2. If the cargo truck can travel three miles per hour, how many feet can it travel for 5 hours?



ANSWER GUIDE

Activity 1

- | | | |
|----------|---------|----------|
| 1. TRUE | 2. TRUE | 3. FALSE |
| 4. FALSE | 5. TRUE | |

Activity 2

- | | | | |
|--------------------|------------|-------------|---------------|
| 1. 1440 inches | 2. 46.5 ft | 3. 6.853 ft | 4. 2.56 miles |
| 5. 316, 800 inches | | | |

Activity 3

- | | | | |
|--------------|-----------|------------------|--------------|
| 1. 992 drams | 2. 720 oz | 3. 30, 720 drams | 4. 7,040 lbs |
|--------------|-----------|------------------|--------------|

Activity 4

- | | |
|----------------------|----------------|
| 1. 210.4 tablespoons | 2. 4,800 fl.oz |
| 3. 280 quarts | 4. 92.5 pints |

Activity 5

- | | | |
|-------------------------------|--------------|---------------|
| 1. 8.192 sq. m = 8,192 sq. cm | 2. 0.0048 km | 3. 350,000 cm |
|-------------------------------|--------------|---------------|

Activity 6

- | | | |
|-------------|--------------|--------------|
| 1. 4.5 g | 2. 0.9235 kg | 3. 35, 000 g |
| 4. 0.3892 g | 5. 3,312 g | |



ANSWER GUIDE

Activity 7

- | | | |
|---------------|-----------------|--------------|
| 1. 1,143.2 cL | 2. 0.0019 kL | 3. 14,000 mL |
| 4. 235 mL | 5. 1,972,000 cL | 6. 0.3 L |

Activity 8

- | | | |
|--------------|-----------------|------------|
| 1. 365.76 cm | 2. 191.49 pints | 3. 13.65 m |
| 4. 8.05 km | 5. 764.45 g | 6. 49.5 kg |

Activity 9

1. 531 inches \times \$0.25 = \$132.75
2. 1,353.03 L divided by 1.5 L = 902.02 min.
3. 225 kg divided by \$250 = \$0.9 per kg
4. 3.11 miles \times 0.5 = 1.56 L

Activity 10

- | | |
|----------------|----------------|
| 1. 100,000 lbs | 2. 950,400 ft. |
|----------------|----------------|



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