17. [Units of Measurement]

Skill 17.1 Converting customary units of length.

To change from **smaller** units to **larger** units
- Divide by the conversion factor (because you need less).

Example: To change 60 inches to feet ÷ by 12

To change from **larger** units to **smaller** units
- Multiply by the conversion factor (because you need more).

Example: To change 5 feet to inches × by 12

Conversion Facts
1 mi = 1760 yd = 5280 ft
1 yd = 3 ft = 36 in.
1 ft = 12 in.

Q. Write in feet:
5 yd =

A. *5 yd × 3*
*= **15 ft***

To convert 5 yards to feet, multiply by 3.

a) Write in inches:
5 feet = 60 in.

1 ft = 12 in. so 5 × 12 =

b) Write in feet:
2 yards = ft

c) Write in feet:
36 inches = ft

d) Write in inches:
4 ft = in.

e) Write in yards:
30 ft = yd

f) Write in feet:
60 in. = ft

g) Write in inches:
7 ft = in.

h) Write in inches:
10 yd = in.

i) Write in inches:
2 ft 3 in. = in.

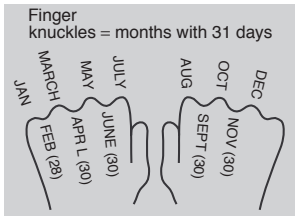
j) Write in feet:
4 yd 1 ft = ft

Skill 17.2 Converting units of time.

Conversion Facts
1 century = 100 years
1 decade = 10 years
1 year = 12 months = 52 weeks = 365 days
1 leap year = 366 days
1 fortnight = 2 weeks
1 week = 7 days
1 day = 24 hours
1 hour (h) = 60 minutes = 3600 seconds
1 minute (min) = 60 seconds (s)

Days in the month:

30 days have *September, April, June* *and* *November.*



All the rest have 31 except February alone which has 28 days clear and 29 in each leap year.

Q. Write in minutes:
3 hours, 45 minutes =

A. *3 h × 60*
= 180 min
180 min + 45 min
= ***225 min***

To convert hours to minutes, multiply by 60.
Add the minutes.

a) Write in days:
4 weeks = 28 days

1 week = 7 days so 4 × 7 =

b) Write in minutes:
120 seconds = min

c) Write in seconds:
2 minutes = s

d) Write in days:
2 weeks = days

e) Write in weeks:
28 days = weeks

f) Write in minutes:
3 hours = min

g) Write in days:
5 weeks, 2 days = days

h) Write in minutes:
1 hour, 15 minutes = min

i) Write in hours:
10 days = h

j) Write in hours:
1 day, 12 hours = h

Skill 17.3 Converting metric units of length.

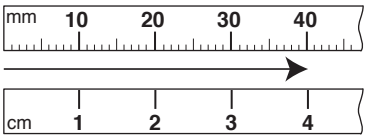
To change from **smaller** units to **larger** units
- Divide by the conversion factor (because you need less).

Example: To change 40 mm to cm ÷ by 10

To change from **larger** units to **smaller** units
- Multiply by the conversion factor (because you need more).

Example: To change 4 cm to mm × by 10

Conversion Facts
1 km = 1000 m = 100,000 cm = 1,000,000 mm
1 m = 100 cm = 1000 mm
1 cm = 10 mm



Q. Write in meters:
600 cm =

A. *600 cm ÷ 100*
*= **6 m***

To convert 600 centimeters to meters, divide by 100.

a) Write in meters:
1000 cm = 10 m
100 cm = 1 m so 1000 ÷ 100 =

b) Write in centimeters:
100 mm = cm

c) Write in meters:
4 km = m

d) Write in millimeters:
5 cm = mm

e) Write in centimeters:
30 mm = cm

f) Write in meters:
500 cm = m

g) Write in milllimeters:
2 cm = mm

h) Write in millimeters:
2 m = mm

i) Write in centimeters:
400 mm = cm

j) Write in kilometers:
2000 m = km

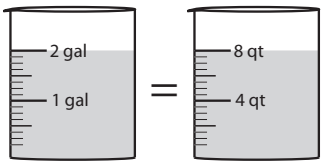
Skill 17.4 Converting customary units of capacity.

To change from **smaller** units to **larger** units
- Divide by the conversion factor (because you need less).

Example: To change 8 quarts to gallons divide by 4

To change from **larger** units to **smaller** units
- Multiply by the conversion factor (because you need more).

Example: To change 2 gallons to quarts multiply by 4



Conversion Facts
1 gal = 4 qt = 8 pt
1 qt = 2 pt

Q. Write in pints:
3 gal =

A. *3 gal × 8*
= ***24 pt***

To convert 3 gallons to pints, multiply by 8.

a) Write in gallons:
40 qt = 10 gal
4 qt = 1 gal so 40 ÷ 4 = ...

b) Write in pints:
2 qt = pt
.....

c) Write in quarts:
4 gal = qt
.....

d) Write in pints:
12 gal = pt
.....

e) Write in gallons:
16 pints = gal
.....

f) Write in quarts:
4 pints = qt
.....

g) Write in pints:
8 qt = pt
.....

h) Write in pints:
6 gal = pt
.....

Skill 17.5 Converting metric units of capacity.

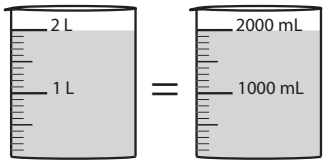
To change from **smaller** units to **larger** units
- Divide by the conversion factor (because you need less).

Example: To change 2000 mL to L ÷ by 1000

To change from **larger** units to **smaller** units
- Multiply by the conversion factor (because you need more).

Example: To change 2 L to mL × by 1000

Conversion Fact
1 L = 1000 mL



Q. Write in milliliters:
7 L =

A. *7 L × 1000*
*= **7000** mL*

To convert liters to milliliters, multiply by 1000.

a) Write in liters:
3000 mL = 3 L

1000 mL = 1 L so 3000 ÷ 1000 =

b) Write in milliliters:
5 L = mL

c) Write in liters:
2000 mL = L

d) Write in milliliters:
4 L = mL

e) Write in milliliters:
8 L = mL

f) Write in liters:
4000 mL = L

g) Write in liters:
10,000 mL = L

h) Write in milliliters:
9 L = mL

Skill 17.6 Converting customary units of mass.

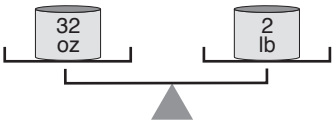
To change from **smaller** units to **larger** units
- Divide by the conversion factor (because you need less).

Example: To change 32 ounces to pounds divide by 16

To change from **larger** units to **smaller** units
- Multiply by the conversion factor (because you need more).

Example: To change 2 pounds to ounces multiply by 16

Conversion Facts
1 ton = 2000 lb = 32,000 oz
1 lb = 16 oz



Q. Write in ounces: 4lb =

A. *4 lb × 16* = ***64 oz***

To convert 4 pounds to ounces, multiply by 16.

a) Write in tons: 8000 lb = 4 tons

2000 lb = 1 ton so 8000 ÷ 2 =

b) Write in ounces: 1 lb = oz

c) Write in pounds: 2 tons = lb

d) Write in tons: 4000 lb = t

e) Write in pounds: 5 tons = lb

f) Write in pounds: 32 oz = lb

g) Write in ounces: 10 lb = oz

h) Write in pounds: 64 oz = lb

Skill 17.7 Converting metric units of mass.

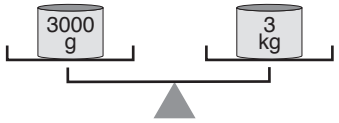
To change from **smaller** units to **larger** units
- Divide by the conversion factor (because you need less).

Example: To change 3000 g to kg ÷ by 1000

To change from **larger** units to **smaller** units
- Multiply by the conversion factor (because you need more).

Example: To change 3 kg to g × by 1000

Conversion Facts
1 tonne = 1000 kg = 1,000,000 g
1 kg = 1000 g



Q. Write in grams:
7 kg =

A. *7 kg × 1000*
= ***7000 g***

To convert 7 kilograms to grams, multiply by 1000.

a) Write in grams:
9 kg = 9000 g
1 kg = 1000 g so 9 × 1000 =

b) Write in grams:
6 kg = g

c) Write in kilograms:
2000 g = kg

d) Write in grams:
4 kg = g

e) Write in grams:
8 kg = g

f) Write in kilograms:
3000 g = kg

g) Write in kilograms:
9000 g = kg

h) Write in kilograms:
1 tonne = kg

Q. One lap of the oval fountain in Hyde Park, London is 8400 inches. How many feet is this?

A. *8400 in. ÷ 12* = ***700 ft***

To convert inches to feet divide by 12.

a) How many meters above sea level is Beaverdam Wash, the lowest point of Utah, if it is 600 times the height of a 100 cm person?

100 × 600 = 60,000 cm

60,000 ÷ 100 = 600 m

b) How many 620 g basketballs can be taken by the coach on to the plane if there is only two and a half kilograms of hand luggage allowed?

c) How many 250 mL cups are necessary to fill a 3 L vase?

d) A large orange has a mass of 8 oz. How many oranges would you expect to find in a 2 pound bag?

e) A half flush of a toilet uses 6 qt of water. How many pints is this?

pt

f) Charlie's average stride length is 80 cm. At this rate, how many steps would he take to run 400 m?

steps

g) How many feet above ground is the Empire State Building if it is 50 times the height of a 25 ft apartment block?

ft

h) A quarter is about 1 inch wide. How many quarters, end to end, would you need to run the length of a table that is 7 feet long?