

Names: _____

Conversions II

Solve the following problems. Some are started for you. Some of the conversion factors you will need are included. Pay attention to deciding what is the given, and what is the conversion factor. Never start with the conversion. **Always show all your work, each step, with units.**

1. Silver is selling for \$8.55 an ounce. How many ounces of silver can you buy with your \$527 income tax return?

$$\text{\$ } 527 \left(\text{—————} \right) = \text{—————} \text{ ounces}$$

2. How many hours are there in 31 days? (You know this conversion)

$$31 \text{ days} \left(\text{—————} \right) = \text{—————} \text{ hours}$$

3. A rancher needs one acre of grazing land for 10 cattle, so how many acres are needed for 155 cattle?

$$155 \text{ cattle} \left(\text{—————} \right) = \text{—————} \text{ acres}$$

4. Calculate the length of the Mississippi River in kilometers (km) if it is 2350 miles long. One km is equal to 0.62 miles.

$$2350 \text{ miles} \left(\text{—————} \right) = \text{—————} \text{ km}$$

5. A trucker maintains an average speed of 65.0 miles per hour in traveling from Phoenix to L.A. How many hours will it take him to travel the 415 miles?

6. An assembly line process uses 28 bolts and 16 screws to manufacture one unit. How many bolts will be needed if a box of 125 screws is used?

7. A pancake recipe calls for 4 eggs per batch. How many batches of pancakes can you make with 2 dozen eggs? (Hint: how many eggs are in 2 dozen?)

8. Bamboo can grow 0.250 feet in 20.0 hours. How many feet would it grow in 125 hours?
- b. How many hours would it take the bamboo to grow 15 feet?
9. The hospital reported that your friend's newborn baby boy weighed in at 3.25 kg. Calculate his weight in pounds if there are 2.20 pounds per kilogram.

Multi-step conversions

Many times you will not know the direct conversion factor to use in a problem. For example, the problem may give 39.9 cm and ask you to convert it to feet. Well we don't know how many cm are in one foot, but we do know how many cm are in one inch. So we do that first. Then we convert from inches to feet!!! Simply line up all of the conversion factors in such a way that the numerator of the first one cancels the denominator of the second one and the numerator of the second conversion factor cancels the denominator of the third, etc. The above problem looks like:

$$39.9 \text{ cm} \left(\frac{1 \text{ inch}}{2.54 \text{ cm}} \right) \left(\frac{1 \text{ foot}}{12 \text{ inches}} \right) = 1.31 \text{ feet}$$

The calculator operation looks like: $39.9 \times 1 \div 2.54 \times 1 \div 12 = 1.31$. Note that any number occurring in any denominator is entered after a "divide" sign. Any number occurring in any numerator (after the first number) is entered after a "multiply" sign. This way, only one "equals" sign needs to be entered at the end of the problem.

10. How many seconds are there in 2.3 hours? (There are 60 minutes in 1 hour and 60 seconds in 1 minute).

$$2.3 \text{ hours} \left(\frac{\text{minutes}}{\text{hours}} \right) \left(\frac{\text{seconds}}{\text{minutes}} \right) = 8300 \text{ seconds (rounds from 8280)}$$

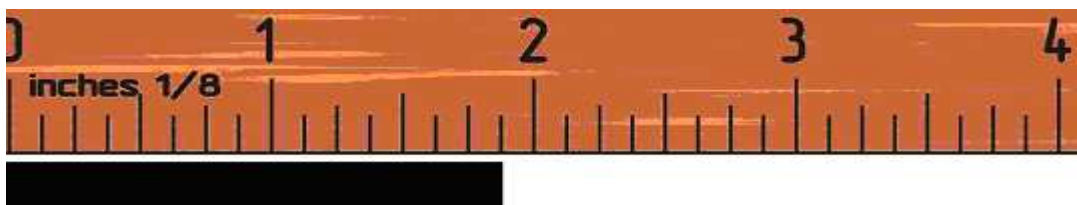
11. How many yards are there in a 0.25 mile track?

$$0.25 \text{ mile} \left(\frac{\text{yards}}{\text{miles}} \right) = 440 \text{ yards}$$

12. A horse is 16 hands high. Calculate his height in feet. (One hand is 4.0 inches)

13. One Euro is worth \$1.21. In a French market, peaches cost 3.72 Euros per kg. How many kg of peaches could you buy with \$5.00?
14. A mountain is 3.5123 km high. What is its height in feet?
15. John's foot is 0.95 feet long. How many centimeters is that?
16. A horse tranquilizer is 45.0 cc. How many gallons is that?
17. Frankie weighs 23,500 milligrams. How many kilograms is that?

18. Record the length of the black box next to this ruler as accurately as possible in inches. _____



19. Record the length of the black box next to this ruler as accurately as possible in cm. _____

