Your name: THIS NEEDS THE NUMBERING FIXED UP.

**Chapter 7: New Homework Questions on Unit Conversion**

 Enough of the class did poorly on questions 17, 18, 19, and 20 that I counted those as bonus questions for the Chapter 7 test, and we will have a separate 20-minute quiz on US-metric conversion on Monday.

For the questions below, use the rough approximations I told you to memorize:

2lb =1kg, 1qt=1L, 1 meter = 1 yard, 1 kilometer = 0.6 miles.

 The basic idea in these conversion questions is to convert between American and metric using just these four facts. If you have to convert 100 grams to pounds, for example, you start by converting grams to kilograms, and then use the approximation that 1kg = 2lb to convert to pounds. If you have to convert 5 kilograms to ounces, you start by converting kilograms to pounds using 1kg = 2 pounds, and then convert pounds to ounces. If you have to convert ounces to liters, you start by converting ounces to cups or pints (8 or 16), and then convert to quarts, and then use the approximation that 1qt = 1L.

1. How many pounds is 100 grams?

2. How many kilograms is one ton?

3. Mrs. Smith wants to have 300 grams of beef for each of the 8 people at her party. How many pounds is that in total?

4. How much is 500,000 grams in tons?

5. How many ounces is 5 kilograms?

6. How many quarts are in 1,500 milliliters?

7. Each glass of juice holds 4 ounces and there are 20 children at the nursery. How big must the juice jug be in liters?

8. How many ounces are in 1 liter?

9. How many cups are in 250ml?

10. A car is going 60km/hour. How many feet per second does it travel?

11. How many feet per second is 600 meters per minute?

12. How many inches long is a 20-meter driveway?

13. If a pen is 6 inches long, how many centimeters long is it?

12. A 100g bar of chocolate costs $0.96. How much does it cost per ounce?

13. A 20-pound bag of rice costs $20.00. How much is that per gram?

14. If it is 77 degrees Fahrenheit, what is the temperature in Celsius?

15. If it is 41 degrees Fahrenheit, what is the temperature in Celsius?

16. If it is 23 degrees Fahrenheit, what is the temperature in Celsius?

17. If it is -4 degrees Fahrenheit, what is the temperature in Celsius?

18. If it is 20 degrees Celsius, what is the Fahrenheit temperature?

19. What is -30 degrees Celsius, in Fahrenheit?

20. What is 100 degrees Celsius, in Fahrenheit?

**Answers**

1. How many pounds is 100 grams? 100 grams is 0.1kg, so it is 0.2lb.

2. How many kilograms is one ton? One ton is 2000 pounds, so it is about 1,000 kilograms.

3. Mrs. Smith wants to have 300 grams of beef for each of the 8 people at her party. How many pounds is that in total? 300g\*8 = 2400g, which is 2.4 kg, and that is about 4.8lb.

4. How much is 500,000 grams in tons? 500,000 grams is 500 kilograms, which is about 1,000 pounds, which is .5 tons.

5. How many ounces is 5 kilograms? 5kg is about 10 pounds, which is 160 ounces.

6. How many quarts are in 1,500 milliliters? 1,500 milliters is 1.5 liters, which is 1.5 quarts.

7. Each glass of juice holds 4 ounces and there are 20 children at the nursery. How big must the juice jug be in liters? 80 ounces, which is 10 cups, which is 5 pints, which is 2.5 quarts, so 2.5 liters.

8. How many ounces are in 1 liter? 1 liter is about 1 quart, which is 2 pints, which is 4 cups, which is 32 ounces.

9. How many cups are in 250ml? Let’s find out how cups are in 1 liter and divide by 4, since a liter has 1,000 ml. 1 liter is about 1 quart, which is 2 pints, which is 4 cups. Dividing 4 by 4, we get 1 cup as the answer.

10. A car is going 60km/hour. How many feet per second does it travel? That is 1km/minute. It is 1,000 meters per minute, or 1000\*3 feet per minute, 3,000 feet per minute, or 3000ft/60sec = 50 feet per second.

11. How many feet per second is 600 meters per minute? 600 meters per minute is 10 meters per second, which is 30 feet per second.

12. How many inches long is a 20-meter driveway? There are 3 feet per meter, so 60 feet per 20 meters. Each foot has 12 inches, so the driveway is 12\*60 = 720 inches long.

13. If a pen is 6 inches long, how many centimeters long is it?

 The pen is ½ foot long, and a foot is 1/3 of a meter, so the pen is 1/6 of a meter long. That is about 17cm.

12. A 100g bar of chocolate costs $0.96. How much does it cost per ounce? 100g is 0.1kg, about .2 pounds, or .2\*16oz = 3.2oz, so that comes to .96/3.2 = $0.30/oz.

13. A 20-pound bag of rice costs $20.00. How much is that per gram? 20lb = 10kg = 10,000g, so the price per gram is $20.00/10,000g = $0.002/g.

14. If it is 77 degrees Fahrenheit, what is the temperature in Celsius? If F = 77, C = (5/9)(77 - 32) = (5/9) 45 = 25

15. If it is 41 degrees Fahrenheit, what is the temperature in Celsius? If F = 41, C = (5/9)(41-32) = (5/9) 9 = 5

 16. If it is 23 degrees Fahrenheit, what is the temperature in Celsius? If F = 23, C = (5/9)(23-32) = (5/9) (-9) = -5

 17. If it is -4 degrees Fahrenheit, what is the temperature in Celsius? If F = -4, C = (5/9)(-4 – 32)= (5/9) (-36) = -20

18. If it is 20 degrees Celsius, what is the Fahrenheit temperature? If C= 30, F = (9/5)(20) +32 = 9 (4) + 32 = 36 + 32 = 68.

 19. What is -30 degrees Celsius, in Fahrenheit? If C = -30, F = (9/5)(-30) + 32 = 9 (-6) + 32 = -54 + 32 = -22.

20. What is 100 degrees Celsius, in Fahrenheit?

 If C = 100, F = (9/5)(100) + 32 = 9 (20) + 32 =180 + 32 = 212.