

Converting Units with Ratio Reasoning

Grade 6 math · Worksheet Answer Key · Standards: 6.RP.A.3d

Every problem has a full worked solution with the final answer in bold. Check the direction of each conversion: smaller units give bigger numbers, and larger units give smaller numbers.

Standards: 6.RP.A.3d · **Level:** Grade 6

Problem 1 Knowing Equivalents

A mile is 5,280 feet and a yard is 3 feet, so a mile is $5,280 \div 3 = 1,760$ yards. A gallon is 4 quarts of 2 pints each.

Answer: **(a) 2; (b) 100; (c) 1,760; (d) 8.**

Problem 2 Metric Conversions

(a) $4 \times 1,000 = 4,000$.

(b) $350 \div 100 = 3.5$.

(c) $2.5 \times 1,000 = 2,500$.

(d) $750 \div 1,000 = 0.75$.

Answer: **(a) 4,000 m; (b) 3.5 m; (c) 2,500 g; (d) 0.75 L.**

Problem 3 Feet and Inches

(a) $7 \times 12 = 84$.

(b) $90 \div 12 = 7.5$.

Answer: **(a) 84 inches; (b) 7.5 feet.**

Problem 4 Yards and Feet

(a) $12 \times 3 = 36$.

(b) $51 \div 3 = 17$.

Answer: **(a) 36 feet; (b) 17 yards.**

Problem 5 Pounds and Ounces Table

$$3 \times 16 = 48. 5 \times 16 = 80. 160 \div 16 = 10.$$

Answer: **48, 80 and 10.**

Pounds	1	3	5	10
Ounces	16	48	80	160

Every column is 16 ounces per pound.

Problem 6 Quarts, Pints and Cups

(a) 2 pints per quart: $6 \times 2 = 12$.

(b) $20 \text{ cups} \div 2 = 10 \text{ pints}$, and $10 \div 2 = 5 \text{ quarts}$.

Answer: **(a) 12 pints; (b) 5 quarts.**

Problem 7 Miles to Feet

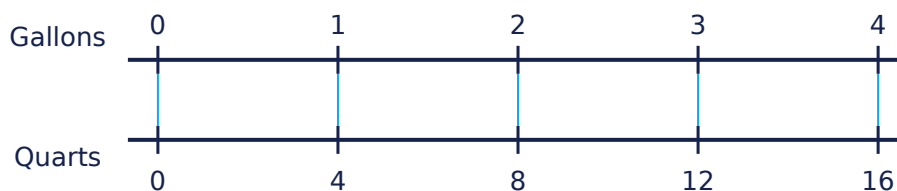
$$2.5 \times 5,280 = 13,200.$$

Answer: **13,200 feet.**

Problem 8 Double Number Line

Each gallon adds 4 quarts, so the blanks are 12 and 16. For 6.5 gallons: $6.5 \times 4 = 26$.

Answer: **12, 16, and 26 quarts.**



Each gallon adds 4 quarts.

Problem 9 Mixed Units

$$4 \text{ yards} = 4 \times 3 = 12 \text{ feet. Total: } 12 + 2 = 14 \text{ feet.}$$

$$14 \times 12 = 168 \text{ inches.}$$

Answer: **14 feet, which is 168 inches.**

Problem 10 Using a Conversion Factor

The factor is $\frac{(16 \text{ oz})}{(1 \text{ lb})}$. Then $2.25 \text{ lb} \times 16 = 36$.

Answer: **36 ounces.**

Problem 11 Which Is Longer?

$$2.4 \text{ m} = 2.4 \times 100 = 240 \text{ cm. } 240 - 235 = 5.$$

Answer: **the 2.4-meter board, by 5 centimeters.**

Problem 12 Which Is Heavier?

$$3 \text{ lb} = 3 \times 16 = 48 \text{ oz. } 50 - 48 = 2.$$

Answer: **the sugar bag, by 2 ounces.**

Problem 13 Punch Bowl

$$2.5 \times 4 = 10 \text{ quarts; } 10 \times 2 = 20 \text{ pints; } 20 \times 2 = 40 \text{ cups.}$$

Answer: **40 servings.**

Problem 14 Training Laps

$$(a) 5.4 \times 1,000 = 5,400.$$

$$(b) 5,400 \div 400 = 13.5.$$

Answer: **(a) 5,400 meters; (b) 13.5 laps.**

Problem 15 Ribbon Costumes

$$\text{Feet needed: } 15 \times 14 = 210. \text{ Yards: } 210 \div 3 = 70.$$

$$\text{Cost: } 70 \times 2.40 = 168.$$

Answer: **\$168.**

Problem 16 Shipping Limit

Total ounces: $36 \times 28 = 1,008$. Pounds: $1,008 \div 16 = 63$.

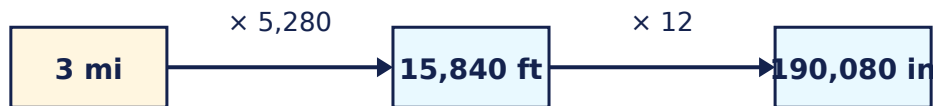
$70 - 63 = 7$.

Answer: **yes, under the limit by 7 pounds.**

Problem 17 Miles to Inches

$3 \times 5,280 = 15,840$ feet. $15,840 \times 12 = 190,080$ inches.

Answer: **15,840 feet and 190,080 inches.**



Two multiplications.

Problem 18 Gas Can Hours

5 gallons $\times$ 8 pints per gallon = 40 pints.

$40 \div 2.5 = 16$.

Answer: **16 hours.**

Problem 19 Ferry Speed

$1.5 \times 5,280 = 7,920$ feet.

$7,920 \div 30 = 264$.

Answer: **264 feet per minute.**

Problem 20 Lab Vials

0.35 L = 350 mL. $350 \div 25 = 14$ vials.

$14 \times 0.85 = 11.90$.

Answer: **14 vials costing \$11.90.**