

School-Home Letter

Dear Family,

Throughout the next few weeks, our math class will be learning about units of measure. We will also be learning how to convert between units of measure.

You can expect to see homework that includes customary and metric units of measure for length, capacity, mass, and weight.

Here is a sample of how your child was taught to convert customary units of length.

Vocabulary

capacity The amount a container can hold when filled.

conversion factor A rate in which the two quantities are equivalent, but use different units.

MODEL Convert Units of Length

Convert 60 inches to feet.

STEP 1

Choose a conversion factor.

1 foot = 12 inches

Use the rate $\frac{1 \text{ ft}}{12 \text{ in.}}$ as the conversion factor.

STEP 2

Multiply 60 inches by the conversion factor.

$$\begin{aligned} 60 \text{ in.} &\times \frac{1 \text{ ft}}{12 \text{ in.}} \\ &= \frac{\cancel{60}^5 \text{ in.}}{1} \times \frac{1 \text{ ft}}{\cancel{12}^1 \text{ in.}} \\ &= 5 \text{ ft} \end{aligned}$$

Tips

Conversion Factors

Because a conversion factor is equal to 1, you can convert from one unit to another by multiplying by an appropriate conversion factor.

Activity

Use beverage containers in your home to practice converting units of capacity. For example, orange juice is often sold in cartons that contain 64 fluid ounces. Work together to determine the number of one-cup servings that can be poured from such a container.

Carta para la casa

Querida familia,

Durante las próximas semanas, en la clase de matemáticas aprenderemos sobre unidades de medida. También aprenderemos a convertir unidades de medida.

Llevaré a la casa tareas para practicar unidades de medida métricas y usuales para longitud, capacidad, masa y peso.

Este es un ejemplo de la manera como aprenderemos convertir unidades usuales de longitud.

Vocabulario

capacidad La cantidad que cabe en un recipiente cuando está lleno.

factor de conversión Una tasa en la que las dos cantidades son equivalentes, pero tienen diferentes unidades.



MODELO Convertir unidades de longitud

Convierte 60 pulgadas a pies

PASO 1

Elige un factor de conversión.

1 pie = 12 pulgadas

Usa la tasa $\frac{1 \text{ pie}}{12 \text{ pulgs.}}$ como el factor de conversión.

PASO 2

Multiplica 60 pulgadas por el factor de conversión.

$$\begin{aligned} 60 \text{ pulgs.} &\times \frac{1 \text{ pie}}{12 \text{ pulgs.}} \\ &= \frac{\cancel{60} \text{ pulgs.}}{1} \times \frac{1 \text{ pie}}{\cancel{12} \text{ pulgs.}} \\ &= 5 \text{ pies} \end{aligned}$$

Pistas

Factores de conversión

Dado que un factor de conversión es igual a 1, puedes convertir de una unidad a otra multiplicando por el factor de conversión apropiado.

Actividad

Use recipientes de bebidas que tenga en casa para practicar la conversión de unidades de capacidad. Por ejemplo, el jugo de naranja se suele vender en envases que contienen 64 onzas líquidas. Trabajen juntos para determinar el número de vasos que se pueden servir de ese recipiente.

Name _____

Convert Units of Length



COMMON CORE STANDARD—6.RP.3d
Understand ratio concepts and use ratio reasoning to solve problems.

Convert to the given unit.

1. 42 ft = yd

2. 2,350 m = km

3. 18 ft = in.

conversion factor: $\frac{1 \text{ yd}}{3 \text{ ft}}$
 $42 \text{ ft} \times \frac{1 \text{ yd}}{3 \text{ ft}}$
 $42 \text{ ft} = 14 \text{ yd}$

4. 289 m = dm

5. 5 mi = yd

6. 35 mm = cm

Compare. Write $<$, $>$, or $=$.

7. 1.9 dm 1,900 mm

8. 12 ft 4 yd

9. 56 cm 56,000 km

10. 98 in. 8 ft

11. 64 cm 630 mm

12. 2 mi 10,560 ft

Problem Solving

13. The giant swallowtail is the largest butterfly in the United States. Its wingspan can be as large as 16 centimeters. What is the maximum wingspan in millimeters?

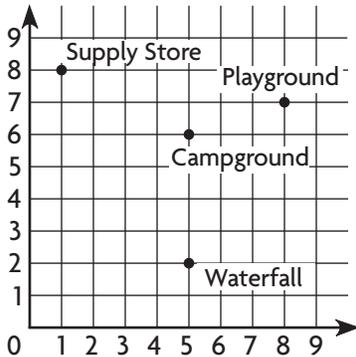
14. The 102nd floor of the Sears Tower in Chicago is the highest occupied floor. It is 1,431 feet above the ground. How many yards above the ground is the 102nd floor?

Lesson Check (6.RP.3d)

- Justin rides his bicycle 2.5 kilometers to school. Luke walks 1,950 meters to school. How much farther does Justin ride to school than Luke walks to school?
- The length of a room is $10\frac{1}{2}$ feet. What is the length of the room in inches?

Spiral Review (6.NS.8, 6.RP.3a, 6.RP.3c)

- Each unit on the map represents 1 mile. What is the distance between the campground and the waterfall?
- On a field trip, 2 vans can carry 32 students. How many students can go on a field trip when there are 6 vans?



- According to a 2008 survey, $\frac{29}{50}$ of all teens have sent at least one text message in their lives. What percent of teens have sent a text message?
- Of the students in Ms. Danver's class, 6 walk to school. This represents 30% of her students. How many students are in Ms. Danver's class?

Name _____

Convert Units of Capacity



COMMON CORE STANDARD—6.RP.3d
Understand ratio concepts and use ratio reasoning to solve problems.

Convert to the given unit.

1. 7 gallons = quarts

conversion factor: $\frac{4 \text{ qt}}{1 \text{ gal}}$

$$7 \text{ gal} \times \frac{4 \text{ qt}}{1 \text{ gal}}$$

$$7 \text{ gal} = 28 \text{ qt}$$

2. 5.1 liters = kiloliters

Move the decimal point **3** places to the left.

5.1 liters = **0.0051** kiloliters

3. 20 qt = gal

4. 40 L = mL

5. 16 c = pt

6. 300 L = kL

7. 33 pt = qt pt

8. 29 cL = daL

9. 4 pt = fl oz

10. 7.7 kL = cL

11. 24 fl oz = pt c

Problem Solving



12. A bottle contains 3.5 liters of water. A second bottle contains 3,750 milliliters of water. How many more milliliters are in the larger bottle than in the smaller bottle?

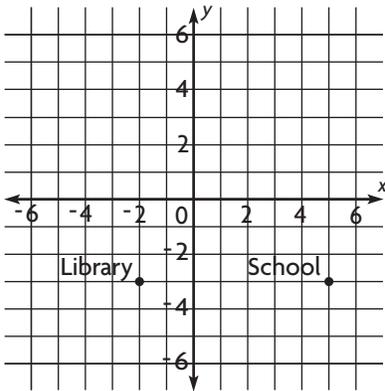
13. Arnie's car used 100 cups of gasoline during a drive. He paid \$3.12 per gallon for gas. How much did the gas cost?

Lesson Check (6.RP.3d)

1. Gina filled a tub with 25 quarts of water. What is this amount in gallons and quarts?
2. Four horses are pulling a wagon. Each horse drinks 45,000 milliliters of water each day. How many liters of water will the horses drink in 5 days?

Spiral Review (6.NS.8, 6.RP.2, 6.RP.3b, 6.RP.3c, 6.RP.3d)

3. The map shows Henry's town. Each unit represents 1 kilometer. After school, Henry walks to the library. How far does he walk?
4. An elevator travels 117 feet in 6.5 seconds. What is the elevator's speed as a unit rate?



5. Julie's MP3 player contains 860 songs. If 20% of the songs are rap songs and 15% of the songs are R&B songs, how many of the songs are other types of songs?
6. How many kilometers are equivalent to 3,570 meters?

Name _____

Convert Units of Weight and Mass



COMMON CORE STANDARD—6.RP.3d

Understand ratio concepts and use ratio reasoning to solve problems.

Convert to the given unit.

1. 5 pounds = ounces

conversion factor: $\frac{16 \text{ oz}}{1 \text{ lb}}$

5 pounds = $5 \cancel{\text{ lb}} \times \frac{16 \text{ oz}}{1 \cancel{\text{ lb}}} = 80 \text{ oz}$

2. 2.36 grams = hectograms

Move the decimal point **2** places to the left.

2.36 grams = **0.0236** hectogram

3. 48 oz = lb

4. 30 g = dg

5. 5 T = lb

6. 17.2 hg = g

7. 400 lb = T

8. 38,600 mg = dag

9. 87 oz = lb oz

10. 0.0793 kg = cg

11. 0.65 T = lb

Problem Solving



12. Maggie bought 52 ounces of swordfish selling for \$6.92 per pound. What was the total cost?

13. Three bunches of grapes have masses of 1,000 centigrams, 1,000 decigrams, and 1,000 grams, respectively. What is the total combined mass of the grapes in kilograms?

Lesson Check (6.RP.3d)

1. The mass of Denise's rock sample is 684 grams. The mass of Pauline's rock sample is 29,510 centigrams. How much greater is the mass of Denise's sample than Pauline's sample?
2. A sign at the entrance to a bridge reads: Maximum allowable weight 2.25 tons. Jason's truck weighs 2,150 pounds. How much additional weight can he carry?

Spiral Review (6.RP.1, 6.RP.2, 6.RP.3a, 6.RP.3b, 6.RP.3c)

3. There are 23 students in a math class. Twelve of them are boys. What is the ratio of girls to total number of students?
4. Miguel hiked 3 miles in 54 minutes. At this rate, how long will it take him to hike 5 miles?

5. Marco borrowed \$150 from his brother. He has paid back 30% so far. How much money does Marco still owe his brother?
6. How many milliliters are equivalent to 2.7 liters?

Name _____

Transform Units**COMMON CORE STANDARD—6.RP.3d**
*Understand ratio concepts and use ratio reasoning to solve problems.***Multiply or divide the quantities.**

1. $\frac{62 \text{ g}}{1 \text{ day}} \times 4 \text{ days}$

$$\frac{62 \text{ g}}{1 \text{ day}} \times \frac{4 \text{ days}}{1} = 248 \text{ g}$$

2. $322 \text{ sq yd} \div 23 \text{ yd}$

$$\frac{322 \text{ sq yd}}{23 \text{ yd}}$$

$$\frac{322 \text{ yd} \times \cancel{\text{yd}}}{23 \cancel{\text{ yd}}} = 14 \text{ yd}$$

3. $\frac{128 \text{ kg}}{1 \text{ hr}} \times 10 \text{ hr}$

4. $136 \text{ sq km} \div 8 \text{ km}$

5. $\frac{88 \text{ lb}}{1 \text{ day}} \times 12 \text{ days}$

6. $154 \text{ sq mm} \div 11 \text{ mm}$

7. $\frac{\$150}{1 \text{ sq ft}} \times 20 \text{ sq ft}$

8. $234 \text{ sq ft} \div 18 \text{ ft}$

9. $324 \text{ sq yd} \div 9 \text{ yd}$

10. $\frac{72 \text{ km}}{1 \text{ gal}} \times 20 \text{ gal}$

11. $225 \text{ sq dm} \div 5 \text{ dm}$

Problem Solving

12. Green grapes are on sale for \$2.50 a pound. How much will 9 pounds cost?

13. A car travels 32 miles for each gallon of gas. How many gallons of gas does it need to travel 192 miles?

Lesson Check (6.RP.3d)

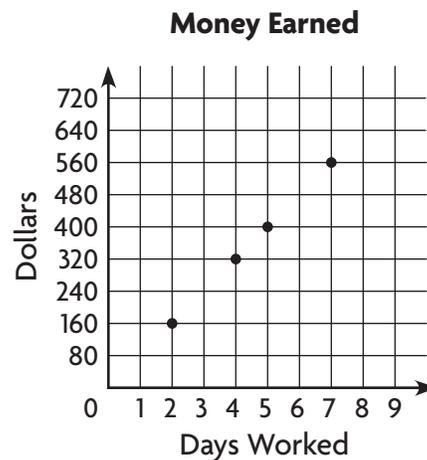
1. A rectangular parking lot has an area of 682 square yards. The lot is 22 yards wide. What is the length of the parking lot?
2. A machine assembles 44 key chains per hour. How many key chains does the machine assemble in 11 hours?

Spiral Review (6.RP.3a, 6.RP.3c)

3. Three of these ratios are equivalent to $\frac{8}{20}$. Which one is NOT equivalent?
4. The graph shows the money that Marco earns for different numbers of days worked. How much money does he earn per day?

$$\frac{2}{5} \quad \frac{12}{24} \quad \frac{16}{40} \quad \frac{40}{100}$$

5. Megan answered 18 questions correctly on a test. That is 75% of the total number of questions. How many questions were on the test?



Name _____

Problem Solving • Distance, Rate, and Time Formulas



COMMON CORE STANDARD—6.RP.3d
Understand ratio concepts and use ratio reasoning to solve problems.

Read each problem and solve.

1. A downhill skier is traveling at a rate of 0.5 mile per minute. How far will the skier travel in 18 minutes?

$$d = r \times t$$

$$d = \frac{0.5 \text{ mi}}{1 \text{ min}} \times 18 \text{ min}$$

$$d = 9 \text{ miles}$$

2. How long will it take a seal swimming at a speed of 8 miles per hour to travel 52 miles?

3. A dragonfly traveled at a rate of 35 miles per hour for 2.5 hours. What distance did the dragonfly travel?

4. A race car travels 1,212 kilometers in 4 hours. What is the car's rate of speed?

5. A cyclist travels at a rate of 1.8 kilometers per minute. How far will the cyclist travel in 48 minutes?

6. Kim and Jay leave at the same time to travel 25 miles to the beach. Kim drives 9 miles in 12 minutes. Jay drives 10 miles in 15 minutes. If they both continue at the same rate, who will arrive at the beach first?

Lesson Check (6.RP.3d)

1. Mark cycled 25 miles at a rate of 10 miles per hour. How long did it take Mark to cycle 25 miles?
2. Joy ran 13 miles in $3\frac{1}{4}$ hours. What was her average rate?

Spiral Review (6.RP.3a, 6.RP.3c, 6.RP.3d)

3. Write two ratios that are equivalent to $\frac{9}{12}$.
4. In the Chang family's budget, 0.6% of the expenses are for internet service. What fraction of the family's expenses is for internet service? Write the fraction in simplest form.

5. How many meters are equivalent to 357 centimeters?
6. What is the product of the two quantities shown below?

$$\frac{60 \text{ mi}}{1 \text{ hr}} \times 12 \text{ hr}$$
