

Dear Family,

Throughout the next few weeks, our math class will be learning how to compare and convert measurements. The students will use appropriate customary and metric units and conversion tables.

You can expect to see homework that includes comparing and converting length, weight/mass, capacity, and time.

Here is a sample of how your child will be taught to convert and compare weight.

Vocabulary

capacity The amount a container can hold when filled

elapsed time The amount of time that passes between the start of an activity and the end of that activity

gram A metric unit of mass

mass The amount of matter in an object

pound A customary unit of weight; 1 pound = 16 ounces

weight The measure of how heavy something is

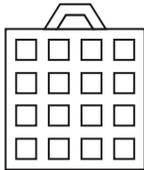


MODEL Customary Weight

Convert 2 pounds to ounces. Compare the converted measure to 30 ounces.

STEP 1

1 pound is equal to 16 ounces.



$$\begin{array}{rcccl}
 \text{total} & & & & \text{total} \\
 \text{pounds} & \times & \text{ounces in} & = & \text{ounces} \\
 & & 1 \text{ pound} & & \\
 \downarrow & & \downarrow & & \downarrow \\
 2 & & 16 & & 32
 \end{array}$$

STEP 2

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

$$32 \text{ ounces } \bigcirc 30 \text{ ounces}$$

$$32 > 30$$

Tips

Converting Units of Measure

Draw a picture to understand how units are related. When converting from a larger unit to a smaller unit, multiply. When converting from a smaller unit to a larger unit, divide.

Activity

Encourage your child to commit most of the unit conversions to memory. It will be useful for years to come. You can make a series of flash cards with equivalent measures on either side of the card, and work together to practice with unit conversions each night.

Carta para la casa

Querida familia,

Durante las próximas semanas, en la clase de matemáticas aprenderemos a comparar y convertir medidas. Usaremos las unidades de adecuadas los sistemas usual y métrico, y tablas de conversión.

Llevaré a la casa tareas con actividades para comparar y convertir medidas de longitud, peso/masa, capacidad y tiempo.

Este es un ejemplo de la manera como aprenderemos a convertir y comparar medidas de peso.

Vocabulario

capacidad La cantidad que le cabe a un recipiente cuando se llena

tiempo transcurrido La cantidad de tiempo que pasa entre el comienzo y el final de una actividad

gramo Una unidad métrica de masa

masa La cantidad de materia que tiene un objeto

libra Una unidad usual de peso;
1 libra = 16 onzas

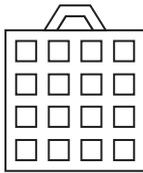
peso La medida de qué tan pesado es algo

MODELO El peso en el sistema usual

Convierte 2 libras a onzas. Compara la medida que convertiste con 30 onzas.

PASO 1

1 libra es igual a 16 onzas.



total de libras	×	onzas en 1 libra	=	total de onzas
↓		↓		↓
2		16		32

PASO 2

Compara. Escribe <, > o =.

32 onzas ○ 30 onzas

$$32 > 30$$

Pistas

Convertir unidades de medida

Haz un dibujo para entender cómo se relacionan las unidades. Cuando conviertas de una unidad mayor a una menor, multiplica. Cuando conviertas de una unidad menor a una mayor, divide.

Actividad

Anime a su hijo o hija a memorizar la mayoría de las conversiones de unidades. Es algo que le será útil en el futuro. Puede crear una serie de tarjetas nemotécnicas con medidas equivalentes en los dos lados de cada tarjeta, trabajen juntos y practiquen las conversiones de unidades en la noche.

Name _____

Customary Length

Convert.

1. 12 yd = **36** ft 2. 5 ft = _____ in. 3. 5 mi = _____ ft



4. 240 in. = _____ ft 5. 100 yd = _____ ft 6. 10 ft = _____ in.
7. 150 in. = _____ ft _____ in. 8. 7 yd 2 ft = _____ ft 9. 10 mi = _____ ft

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

10. 23 in. ○ 2 ft 11. 25 yd ○ 75 ft 12. 6,200 ft ○ 1 mi 900 ft
13. 100 in. ○ 3 yd 1 ft 14. 1,000 ft ○ 300 yd 15. 500 in. ○ 40 ft

Problem Solving REAL WORLD

16. Marita orders 12 yards of material to make banners. If she needs 1 foot of fabric for each banner, how many banners can she make?
17. Christy bought an 8-foot piece of lumber to trim a bookshelf. Altogether, she needs 100 inches of lumber for the trim. Did Christy buy enough lumber? Explain.

Lesson Check

- Jenna's garden is 5 yards long. How long is her garden in feet?
(A) 60 feet
(B) 15 feet
(C) 8 feet
(D) 2 feet
- Ellen needs to buy 180 inches of ribbon to wrap a large present. The store sells ribbon only in whole yards. How many yards does Ellen need to buy to have enough ribbon?
(A) 3 yards
(B) 4 yards
(C) 5 yards
(D) 6 yards

Spiral Review

- McKenzie works for a catering company. She is making iced tea for an upcoming event. For each container of tea, she uses 16 tea bags and 3 cups of sugar. If McKenzie uses 64 tea bags, how many cups of sugar will she use? (Lesson 9.6)
(A) $\frac{3}{4}$ cup
(B) 4 cups
(C) 8 cups
(D) 12 cups
- Which is the quotient of 396 divided by 12? (Lesson 2.6)
(A) 31
(B) 33
(C) 36
(D) 38
- Javier bought 48 sports cards at a yard sale. Of the cards, $\frac{3}{8}$ were baseball cards. How many cards were baseball cards? (Lesson 7.1)
(A) 48
(B) 18
(C) 6
(D) 3
- What is the unknown number in Sequence 2 in the chart? What rule can you write that relates Sequence 2 to Sequence 1? (Lesson 9.5)

Sequence Number	1	2	3	8	10
Sequence 1	4	8	12	32	40
Sequence 2	8	16	24	64	?

- 40; Multiply by 1.
- 60; Add 20.
- 80; Multiply by 2.
- 20; Divide by 2.

Name _____

Customary Capacity

Convert.

1. 5 gal = **40** pt

2. 192 fl oz = _____ pt

3. 15 pt = _____ c

Think: 1 gallon = 4 quarts

1 quart = 2 pints

4. 240 fl oz = _____ c

5. 32 qt = _____ gal

6. 10 qt = _____ c

7. 48 c = _____ qt

8. 72 pt = _____ gal

9. 128 fl oz = _____ pt

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

10. 17 qt 4 gal

11. 96 fl oz 8 pt

12. 400 pt 100 gal

13. 100 fl oz 16 pt

14. 74 fl oz 8 c

15. 12 c 3 qt

Problem Solving  **REAL WORLD**

16. Vickie made a recipe for 144 fluid ounces of scented candle wax. How many 1-cup candle molds can she fill with the recipe?

17. A recipe calls for 32 fluid ounces of heavy cream. How many 1-pint containers of heavy cream are needed to make the recipe?

Lesson Check

- Rosa made 12 gallons of lemonade to sell at a lemonade stand. How many pints of lemonade did she make?
(A) 96 pints
(B) 48 pints
(C) 3 pints
(D) $1\frac{1}{2}$ pints
- Ebonae's fish tank holds 40 gallons. How many quarts does the fish tank hold?
(A) 4 quarts
(B) 10 quarts
(C) 80 quarts
(D) 160 quarts

Spiral Review

- A mountain climber climbed 15,840 feet on her way to the summit of a mountain. How many miles did she climb? (Lesson 10.1)
(A) 1 mile
(B) 2 miles
(C) 3 miles
(D) 4 miles
- Jamal is making pancakes. He has $6\frac{3}{4}$ cups of batter, but he needs a total of 12 cups. How much more batter does Jamal need? (Lesson 6.6)
(A) $5\frac{1}{4}$ cups
(B) $5\frac{3}{4}$ cups
(C) $6\frac{1}{4}$ cups
(D) $18\frac{3}{4}$ cups
- At a building site, there are 16 pallets with sacks of cement. The total weight of all the pallets and cement is 4,856 pounds. Each pallet with cement weighs the same amount. How much does each pallet with cement weigh? (Lesson 2.7)
(A) 304 pounds
(B) $303\frac{1}{2}$ pounds
(C) 303 pounds
(D) 300 pounds
- A publisher shipped 15 boxes of books to a bookstore. Each box contained 32 books. How many books in all did the publisher ship to the bookstore? (Lesson 1.7)
(A) 560
(B) 480
(C) 400
(D) 320

Name _____

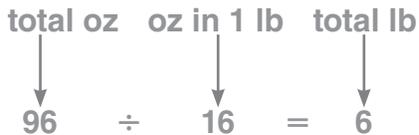
Weight

Convert.

1. 96 oz = 6 lb

2. 6 T = _____ lb

3. 18 lb = _____ oz



4. 3,200 oz = _____ lb

5. 12 T = _____ lb

6. 9 lb = _____ oz

7. 7 lb = _____ oz

8. 100 lb = _____ oz

9. 60,000 lb = _____ T

Compare. Write <, >, or =.

10. 40 oz ○ 4 lb

11. 80 oz ○ 5 lb

12. 5,000 lb ○ 5 T

13. 18,000 lb ○ 9 T

14. 25 lb ○ 350 oz

15. 27 oz ○ 2 lb

Problem Solving REAL WORLD

16. Mr. Fields ordered 3 tons of gravel for a driveway at a factory. How many pounds of gravel did he order?

17. Sara can take no more than 22 pounds of luggage on a trip. Her suitcase weighs 112 ounces. How many more pounds can she pack without going over the limit?

Lesson Check

- Paolo's puppy weighed 11 pounds at the vet's office. What is this weight in ounces?
 (A) 16 ounces
 (B) 32 ounces
 (C) 166 ounces
 (D) 176 ounces
- The weight limit on a bridge is 5 tons. What is this weight in pounds?
 (A) 80 pounds
 (B) 5,000 pounds
 (C) 10,000 pounds
 (D) 20,000 pounds

Spiral Review

- There are 20 guests at a party. The host has 8 gallons of punch. He estimates that each guest will drink 2 cups of punch. If his estimate is correct, how much punch will be left over at the end of the party? (Lesson 10.2)
 (A) 16 cups
 (B) 40 cups
 (C) 88 cups
 (D) 128 cups
- A typical lap around a track in the United States has a length of 440 yards. How many laps would need to be completed to run a mile? (Lesson 10.1)
 (A) 4
 (B) 12
 (C) 40
 (D) 440
- A recipe for sweet potato pie calls for $\frac{3}{4}$ cup of milk. Martina has 6 cups of milk. How many sweet potato pies can she make with that amount of milk? (Lesson 8.4)
 (A) 2
 (B) 4
 (C) 8
 (D) 16
- Which of the following is the best estimate for the total weight of these cold meats: $1\frac{7}{8}$ pounds of bologna, $1\frac{1}{2}$ pounds of ham, and $\frac{7}{8}$ pound of roast beef? (Lesson 6.6)
 (A) 3 pounds
 (B) $3\frac{1}{2}$ pounds
 (C) 4 pounds
 (D) $4\frac{1}{2}$ pounds

Name _____

Multistep Measurement Problems

Solve.

1. A cable company has 5 miles of cable to install. How many 100-yard lengths of cable can be cut?

Think: 1,760 yards = 1 mile.

So the cable company has $5 \times 1,760$, or 8,800 yards of cable.

Divide. $8,800 \div 100 = 88$

88 lengths

2. Afton made a chicken dish for dinner. She added a 10-ounce package of vegetables and a 14-ounce package of rice to 40 ounces of chicken. What was the total weight of the chicken dish in pounds?
-
3. A jar contains 26 fluid ounces of spaghetti sauce. How many cups of spaghetti sauce do 4 jars contain?
-
4. Coach Kent brings 3 quarts of sports drink to soccer practice. He gives the same amount of the drink to each of his 16 players. How many ounces of the drink does each player get?
-
5. Leslie needs 324 inches of fringe to put around the edge of a tablecloth. The fringe comes in lengths of 10 yards. If Leslie buys 1 package of fringe, how many feet of fringe will she have left over?
-
6. Darnell rented a moving truck. The weight of the empty truck was 7,860 pounds. When Darnell filled the truck with his items, it weighed 6 tons. What was the weight in pounds of the items that Darnell placed in the truck?
-

Problem Solving REAL WORLD

7. A pitcher contains 40 fluid ounces of iced tea. Shelby pours 3 cups of iced tea. How many pints of iced tea are left in the pitcher?
-
8. Olivia ties 2.5 feet of ribbon onto one balloon. How many yards of ribbon does Olivia need for 18 balloons?
-

Lesson Check

- Leah is buying curtains for her bedroom window. She wants the curtains to hang from the top of the window to the floor. The window is 4 feet high. The bottom of the window is $2\frac{1}{2}$ feet above the floor. What curtain length should Leah buy?
 (A) 72 inches
 (B) 78 inches
 (C) 84 inches
 (D) 104 inches
- Brady buys 3 gallons of fertilizer for his lawn. After he finishes spraying the lawn, he has 1 quart of fertilizer left over. How many quarts of fertilizer did Brady spray on the lawn?
 (A) 3 quarts
 (B) 7 quarts
 (C) 11 quarts
 (D) 15 quarts

Spiral Review

- A jump rope is 9 feet long. How long is the jump rope in yards? (Lesson 10.1)
 (A) $\frac{3}{4}$ yard
 (B) 3 yards
 (C) 27 yards
 (D) 108 yards
- Which of the following measurements is NOT equal to 8 cups? (Lesson 10.2)
 (A) 1 gallon
 (B) 2 quarts
 (C) 4 pints
 (D) 64 fluid ounces
- What is the unknown number in Sequence 2 in the chart? (Lesson 9.5)
- A farmer divides 20 acres of land into $\frac{1}{4}$ -acre sections. Into how many sections does the farmer divide her land? (Lesson 8.2)

Sequence Number	1	2	3	5	7
Sequence 1	3	6	9	15	21
Sequence 2	6	12	18	30	?

-
- (A) 32
-
-
- (B) 35
-
-
- (C) 36
-
-
- (D) 42
-
-
- (A) 4
-
-
- (B) 5
-
-
- (C) 16
-
-
- (D) 80

Name _____

Metric Measures

Convert.

1. $16 \text{ m} = \mathbf{16,000} \text{ mm}$

number of meters		millimeters in 1 meter		number of millimeters
↓		↓		↓
16	×	1,000	=	16,000

$16 \text{ m} = 16,000 \text{ mm}$

2. $6,500 \text{ cL} = \underline{\hspace{2cm}} \text{ L}$ 3. $15 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$

4. $3,200 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$ 5. $12 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$ 6. $200 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

7. $70,000 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$ 8. $100 \text{ dL} = \underline{\hspace{2cm}} \text{ L}$ 9. $60 \text{ m} = \underline{\hspace{2cm}} \text{ mm}$

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

10. $900 \text{ cm} \bigcirc 9,000 \text{ mm}$ 11. $600 \text{ km} \bigcirc 5 \text{ m}$ 12. $5,000 \text{ cm} \bigcirc 5 \text{ m}$
13. $18,000 \text{ g} \bigcirc 10 \text{ kg}$ 14. $8,456 \text{ mL} \bigcirc 9 \text{ L}$ 15. $2 \text{ m} \bigcirc 275 \text{ cm}$

Problem Solving REAL WORLD

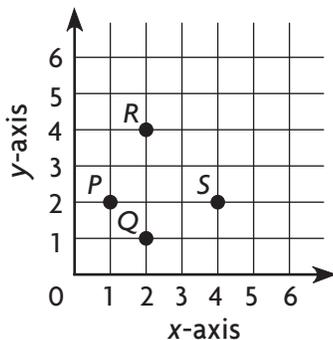
16. Bria ordered 145 centimeters of fabric. Jayleen ordered 1.5 meters of fabric. Who ordered more fabric?
17. Ed fills his sports bottle with 1.2 liters of water. After his bike ride, he drinks 200 milliliters of the water. How much water is left in Ed's sports bottle?

Lesson Check

1. Quan bought 8.6 meters of fabric. How many centimeters of fabric did he buy?
(A) 86 centimeters
(B) 860 centimeters
(C) 8,600 centimeters
(D) 86,000 centimeters
2. Jason takes 2 centiliters of medicine. How many milliliters is this?
(A) 200 milliliters
(B) 20 milliliters
(C) 0.2 milliliter
(D) 0.02 milliliter

Spiral Review

3. Yolanda needs 5 pounds of ground beef to make lasagna for a family reunion. One package of ground beef weighs $2\frac{1}{2}$ pounds. Another package weighs $2\frac{3}{5}$ pounds. How much ground beef will Yolanda have left over after making the lasagna? (Lesson 6.6)
(A) $\frac{1}{2}$ pound
(B) $\frac{1}{3}$ pound
(C) $\frac{1}{5}$ pound
(D) $\frac{1}{10}$ pound
4. A soup recipe calls for $2\frac{3}{4}$ quarts of vegetable broth. An open can of broth contains $\frac{1}{2}$ quart of broth. How much more broth do you need to make the soup? (Lesson 6.6)
(A) $\frac{1}{2}$ quart
(B) 2 quarts
(C) $2\frac{1}{4}$ quarts
(D) $3\frac{1}{4}$ quarts
5. Which point on the graph is located at (4, 2)? (Lesson 9.2)



- (A) P (C) R
(B) Q (D) S

6. A bakery supplier receives an order for 2 tons of sugar from a bakery chain. The sugar is shipped in crates. Each crate holds eight 10-pound bags of sugar. How many crates does the supplier need to ship to fulfill the order? (Lesson 10.4)
(A) 50
(B) 80
(C) 200
(D) 4,000

Name _____

Problem Solving • Customary and Metric Conversions

Solve each problem by making a table.

1. Thomas is making soup. His soup pot holds 8 quarts of soup. How many 1-cup servings of soup will Thomas make?

32 1-cup servings

Number of Quarts	1	2	3	4	8
Number of Cups	4	8	12	16	32

2. Paulina works out with a 2.5-kilogram mass. What is the mass of the 2.5-kilogram mass in grams?

3. Alex lives 500 yards from the park. How many inches does Alex live from the park?

4. Emma uses a 250-meter roll of crepe paper to make streamers. How many dekameters of crepe paper does Emma use?

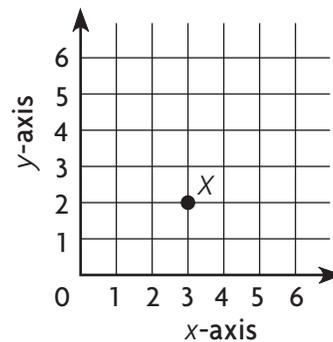
5. A flatbed truck is loaded with 7,000 pounds of bricks. How many tons of brick are on the truck?

Lesson Check

- At the hairdresser, Jenny had 27 centimeters cut off her hair. How many decimeters of hair did Jenny have cut off?
(A) 0.027 dm
(B) 0.27 dm
(C) 2.7 dm
(D) 270 dm
- Marcus needs 108 inches of wood to make a frame. How many feet of wood does Marcus need for the frame?
(A) 3 feet
(B) 6 feet
(C) $7\frac{1}{2}$ feet
(D) 9 feet

Spiral Review

- Tara lives 35,000 meters from her grandparents. How many kilometers does Tara live from her grandparents? (Lesson 10.5)
(A) 3.5 km
(B) 35 km
(C) 350 km
(D) 3,500 km
- Dane's puppy weighed 8 ounces when it was born. Now the puppy weighs 18 times as much as it did when it was born. How many pounds does Dane's puppy weigh now? (Lesson 10.4)
(A) 9 pounds
(B) 12 pounds
(C) 16 pounds
(D) 18 pounds
- A carpenter is cutting dowels from a piece of wood that is 10 inches long. How many $\frac{1}{2}$ -inch dowels can the carpenter cut? (Lesson 8.4)
(A) 2
(B) 5
(C) 15
(D) 20
- Which ordered pair describes the location of point X? (Lesson 9.2)



- (A) (2, 3)
(B) (2, 2)
(C) (3, 2)
(D) (3, 3)

Name _____

Elapsed Time

Convert.

1. 5 days = **120** hr 2. 8 hr = _____ min 3. 30 min = _____ sec

Think: 1 day = 24 hours
 $5 \times 24 = 120$

4. 15 hr = _____ min 5. 5 yr = _____ d 6. 7 d = _____ hr
7. 24 hr = _____ min 8. 600 sec = _____ min 9. 60,000 min = _____ hr

Find the start, elapsed, or end time.

- | | |
|--|---|
| <p>10. Start time: 11:00 A.M.
 Elapsed time: 4 hours 5 minutes
 End time: _____</p> | <p>11. Start time: 6:30 P.M.
 Elapsed time: 2 hours 18 minutes
 End time: _____</p> |
| <p>12. Start time: _____
 Elapsed time: $9\frac{3}{4}$ hours
 End time: 6:00 P.M.</p> | <p>13. Start time: 2:00 P.M.
 Elapsed time: _____
 End time: 8:30 P.M.</p> |

Problem Solving  **REAL WORLD**

14. Kiera's dance class starts at 4:30 P.M. and ends at 6:15 P.M. How long is her dance class?

15. Julio watched a movie that started at 11:30 A.M. and ended at 2:12 P.M. How long was the movie?

Lesson Check

- Michelle went on a hike. She started on the trail at 6:45 A.M. and returned at 3:28 P.M. How long did she hike?
 (A) 3 hours 27 minutes
 (B) 4 hours 43 minutes
 (C) 6 hours 27 minutes
 (D) 8 hours 43 minutes
- Grant started a marathon at 8:00 A.M. He took 4 hours 49 minutes to complete the marathon. When did he cross the finish line?
 (A) 12:11 P.M.
 (B) 12:49 P.M.
 (C) 2:11 P.M.
 (D) 2:49 P.M.

Spiral Review

- Molly is filling a pitcher that holds 2 gallons of water. She is filling the pitcher with a 1-cup measuring cup. How many times will she have to fill the 1-cup measuring cup to fill the pitcher? (Lesson 10.6)
 (A) 4
 (B) 8
 (C) 16
 (D) 32
- Which decimal is between 1.5 and 1.7?
(Lesson 3.3)
 (A) 1.25
 (B) 1.625
 (C) 1.75
 (D) 1.83
- Adrian's recipe for raisin muffins calls for $1\frac{3}{4}$ cups raisins for one batch of muffins. Adrian wants to make $2\frac{1}{2}$ batches of the muffins for a bake sale. How many cups of raisins will Adrian use? (Lesson 7.9)
 (A) $2\frac{1}{2}$ cups
 (B) $4\frac{1}{4}$ cups
 (C) $4\frac{3}{8}$ cups
 (D) $8\frac{3}{4}$ cups
- Kevin is riding his bike on a $10\frac{1}{8}$ -mile bike path. He has covered the first $5\frac{3}{4}$ miles already. How many miles does he have left to ride? (Lesson 6.7)
 (A) $4\frac{3}{8}$ miles
 (B) $4\frac{5}{8}$ miles
 (C) $5\frac{3}{8}$ miles
 (D) $5\frac{5}{8}$ miles

Name _____

Chapter 10 Extra Practice

Lessons 10.1 - 10.3, 10.5

Convert.

1. 8 yd = _____ ft

2. 185 in. = _____ ft _____ in.

3. 2 mi = _____ ft

4. 8 c = _____ pt

5. 12 gal = _____ qt

6. 32 c = _____ fl oz

7. 6,000 lb = _____ T

8. 9 lb = _____ oz

9. 112 oz = _____ lb

10. 380 dm = _____ m

11. 90.51 L = _____ cL

12. 450 mg = _____ g

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

13. 9 ft 4 yd

14. 4 mi 15,840 ft

15. 5 yd 1 ft 192 in.

16. 10 gal 60 qt

17. 480 fl oz 24 pt

18. 16 cups 1 gal

19. 18 T 36,000 lb

20. 145 oz 9 lb

21. 1 T 3,400 lb

22. 45 hg 4.5 kg

23. 770 m 7 km

24. 875 cL 875 mL

Lesson 10.4

Solve.

1. An office supply company is shipping a case of paper to a school. There are 10 reams of paper in the case. If each ream of paper weighs 32 ounces, what is the weight, in pounds, of the case of paper?
2. An adult blue whale weighs 120 tons. A baby blue whale weighs $\frac{1}{40}$ of the weight of the adult blue whale. How many pounds does the baby blue whale weigh?

Lesson 10.6

Solve.

1. Kat has a smoothie company. She needs to make 240 cups of fruit smoothies for the next day. If she wants to store the smoothies overnight in quart containers, how many quart containers will Kat need?
2. Ty needs to cut strips of wrapping paper that are each 9 inches wide. If Ty has 2 rolls of wrapping paper that are each 15 feet long, how many 9-inch strips can he cut?

Lesson 10.7

Convert.

1. 2 yr = _____ d
2. 260 wk = _____ yr
3. 270 min = _____ hr _____ min

Find the start, elapsed, or end time.

4. Start time: _____
Elapsed time: $\frac{3}{4}$ hour
End time: 10:30 A.M.
5. Start time: 7:30 P.M.
Elapsed time: _____
End time: 9:29 P.M.