Name _____

Join and Separate Angles

Add to find the measure of the angle. Write an equation to record your work.

1.

2.

3.
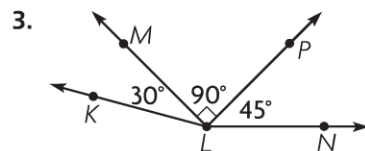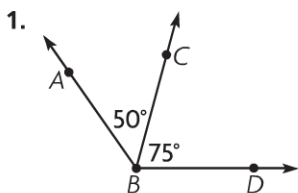
50° + 75° = 125° _____ _____

m∠ABD = ___**125°**___   m∠FGJ = _____   m∠KLN = _____

Use a protractor to find the measure of each angle in the circle.

4. m∠ABC = _____   **5.** m∠DBE = _____

6. m∠CBD = _____   **7.** m∠EBA = _____
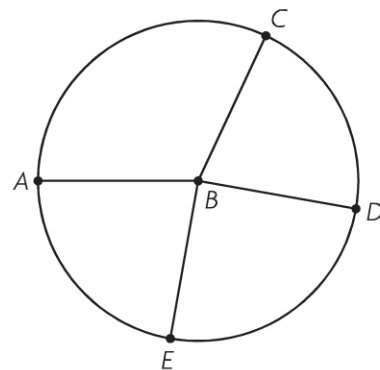
8. Write the sum of the angle measures as an equation.

_____

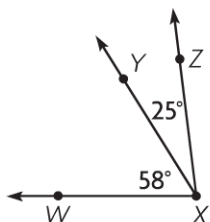## Problem Solving REAL WORLD

9. Ned made the design at the right. Use a protractor. Find and write the measure of each of the 3 angles.

_____

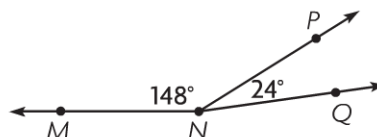**10.** Write an equation to find the measure of the total angle.

_____
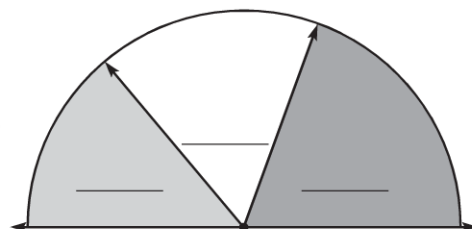
Lesson Check (CC.4.MD.7)

1. What is the measure of ∠*WXZ*?

   Ⓐ 32°

   Ⓑ 83°

   Ⓒ 88°

   Ⓓ 97°

2. Which equation can you use to find the m∠*MNQ*?

   Ⓐ $148° - 24° = $ ▢

   Ⓑ $148° × 24° = $ ▢

   Ⓒ $148° ÷ 24° = $ ▢

   Ⓓ $148° + 24° = $ ▢

Spiral Review (CC.4.NBT.5, CC.4.NF.3d, CC.4.MD.5a, CC.4.MD.5b, CC.4.G.2)

3. Joe bought 6 packages of envelopes. Each package contains 125 envelopes. How many envelopes did he buy?
   (Lesson 2.11)

   Ⓐ 750

   Ⓑ 723

   Ⓒ 720

   Ⓓ 650

4. The Lake Trail is $\frac{3}{10}$ mile long and the Rock Trail is $\frac{5}{10}$ long. Bill hiked each trail once. How many miles did he hike in all?
   (Lesson 7.5)

   Ⓐ $\frac{1}{5}$ mile

   Ⓑ $\frac{4}{10}$ mile

   Ⓒ $\frac{1}{2}$ mile

   Ⓓ $\frac{8}{10}$ mile

5. Ron drew a quadrilateral with 4 right angles and 4 sides with the same length. Which best describes the figure he drew?
   (Lesson 10.4)

   Ⓐ square

   Ⓑ rhombus

   Ⓒ trapezoid

   Ⓓ parallelogram

6. How many degrees are in an angle that turns through $\frac{3}{4}$ of a circle? (Lesson 11.2)

   Ⓐ 45°

   Ⓑ 90°

   Ⓒ 180°

   Ⓓ 270°

Name _____

Problem Solving • Unknown
Angle Measures

Solve each problem. Draw a diagram to help.

1. Wayne is building a birdhouse. He is cutting a board as shown. What is the angle measure of the piece left over?

   Draw a bar model to represent the problem.

x	120°

   180°
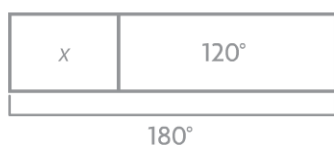
   $x + 120° = 180°$

   $x = 180° - 120°$

   $x = 60°$

   60°
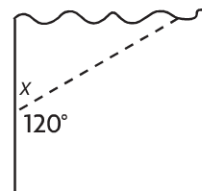
2. An artist is cutting a piece of metal as shown. What is the angle measure of the piece left over?

   225°
   130°
   x

   _____

3. Joan has a piece of material for making a costume. She needs to cut it as shown. What is the angle measure of the piece left over?

   x 40°

   _____

Lesson Check (CC.4.MD.7)

1. Angelo cuts a triangle from a sheet of paper as shown. What is the measure of ∠*x* in the triangle?
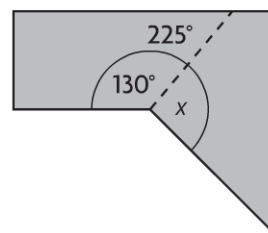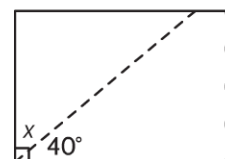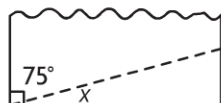

- (A) 15°
- (B) 25°
- (C) 75°
- (D) 105°

2. Cindy cuts a piece of wood as shown. What is the angle measure of the piece left over?
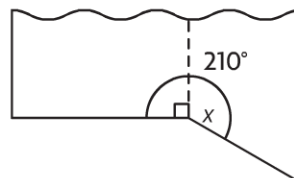
- (A) 30°
- (C) 120°
- (B) 90°
- (D) 150°

Spiral Review (CC.4.OA.3, CC.4.NF.2, CC.4.NF.6, CC.4.MD.7)

3. Tyronne worked 21 days last month. He earned $79 each day. How much did Tyronne earn last month? **(Lesson 3.7)**

- (A) $869
- (B) $948
- (C) $1,659
- (D) $2,169

4. Meg inline skated for $\frac{7}{10}$ mile. Which shows this distance written as a decimal? **(Lesson 9.1)**

- (A) 0.07 mile
- (B) 0.1 mile
- (C) 0.7 mile
- (D) 7.1 miles

5. Kerry ran $\frac{3}{4}$ mile. Sherrie ran $\frac{1}{2}$ mile. Marcie ran $\frac{2}{3}$ mile. Which list orders the friends from least to greatest distance run? **(Lesson 6.8)**

- (A) Kerry, Sherrie, Marcie
- (B) Kerry, Marcie, Sherrie
- (C) Sherrie, Kerry, Marcie
- (D) Sherrie, Marcie, Kerry

6. What is the measure of ∠*ABC*? **(Lesson 11.4)**
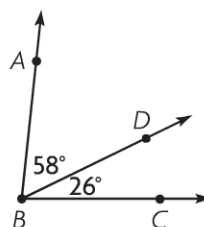
- (A) 32°
- (C) 88°
- (B) 84°
- (D) 94°

Chapter 11 Extra Practice

Lesson 11.1

Tell whether the angle on the circle shows $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}$, or 1 full turn clockwise or counterclockwise.

1.
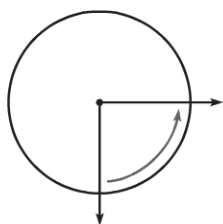
2.
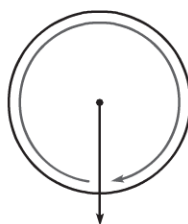
3.

_____

_____

_____

_____

_____

_____
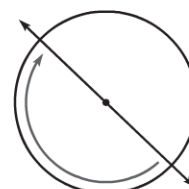
Lesson 11.2

Tell the measure of the angle in degrees.

1.

$\frac{1}{4}$

2.

$\frac{130}{360}$

3.

$\frac{3}{4}$

_____

_____

_____
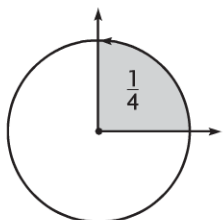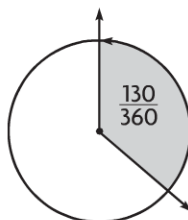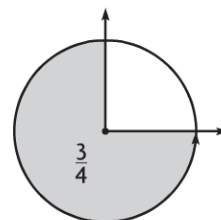
Classify the triangle. Write *acute*, *obtuse*, or *right*.

4. A

40°

110°   30°

B   C

5. A

60°

60°   60°

B   C

6. A

65°

25°

B   C

_____

_____

_____
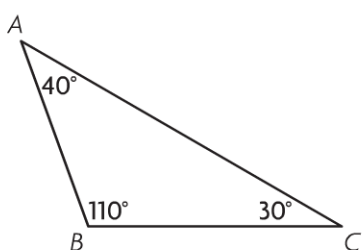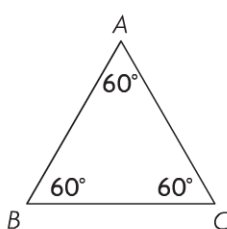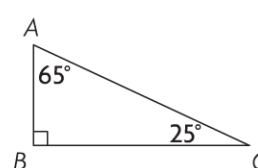
Lesson 11.3

1. Use a protractor to find the angle measure.

m∠*PQR* = _____

2. Use a protractor to draw an angle with the measure 72°.
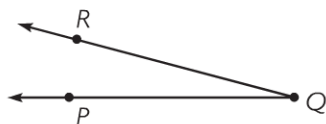
Lesson 11.4

Add to find the measure of the angle. Write an equation to record your work.

1.

_____

_____

m∠*LMN* = _____

2.

_____

_____

m∠*STU* = _____

3.

_____

_____
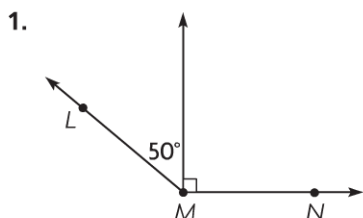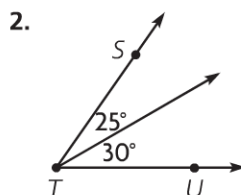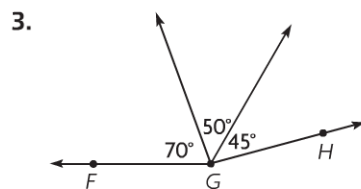
m∠*FGH* = _____

Lesson 11.5

Use the diagram for 1–2.

1. Luke is cutting a board to make a trapezoid for a project. What is the angle measure of the piece left over after Cut A?

_____

2. What is the angle measure of the piece left over after Cut B?

_____

School-Home Letter

Vocabulary

decimeter (dm) A metric unit for measuring length or distance

fluid ounce (fl oz) A customary unit for measuring liquid volume

line plot A graph that shows the frequency of data along a number line

second A small unit of time
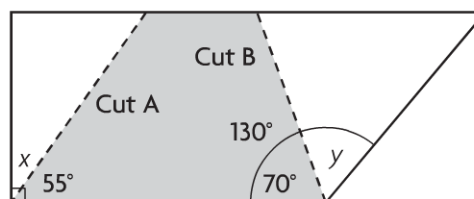
Dear Family,

During the next few weeks, our math class will be learning about customary and metric units of length, weight/mass, and liquid volume. We will also find elapsed time and learn to compute with mixed measures.

You can expect to see homework on how to use measurement benchmarks and how to compare units.

Here is a sample of how your child will be taught to compare sizes of metric units of length.

🔒 MODEL Compare the Relative Size of Centimeters and Millimeters

Look at a centimeter ruler.

1 2 3 4 5 6 7 8 9 10 11
centimeters

Tips

Estimating Measures

Use benchmarks to help you estimate measures. For example, the width of your finger is about 1 centimeter.
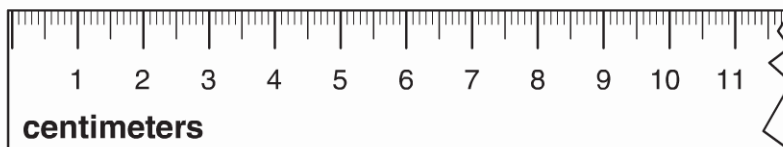
Each labeled mark on the ruler is 1 centimeter.
The small marks between centimeters are millimeters.
1 centimeter = 10 millimeters

1 centimeter is 10 times as long as 1 millimeter.

1 millimeter is $\frac{1}{10}$ or 0.1 of a centimeter.

Activity

Have your child commit basic customary and metric units of measure to memory. Work together to make flash cards with measurement units, and have your child practice relating and comparing units. Use daily activities, such as meals and cooking, as opportunities for practice. For example, "If you start with 1 quart of juice and drink 3 cups, how many cups of juice are left?"

Carta para la casa

Vocabulario

decímetro (dm) Una unidad métrica que se usa para medir longitud o distancia

onza fluida (fl oz) Una unidad usual para medir el volumen líquido

diagrama de puntos Una gráfica que muestra la frecuencia de los datos a lo largo de una recta numérica

segundo Una unidad pequeña de tiempo

Querida familia,

Durante las próxima semanas, en la clase de matemáticas aprenderemos las unidades usuales y métricas de longitud, peso/masa y volumen líquido. También aprenderemos a hallar el tiempo transcurrido y a calcular con medidas mixtas.

Llevaré a la casa tareas con actividades para aprender a usar puntos de referencia para medir y a comparar unidades.

Este es un ejemplo de la manera como aprenderemos a comparar los tamaños de las unidades métricas de longitud.

🔑 MODELO   Comparar el tamaño relativo de centímetros y milímetros

Observa la regla dividida en centímetros.
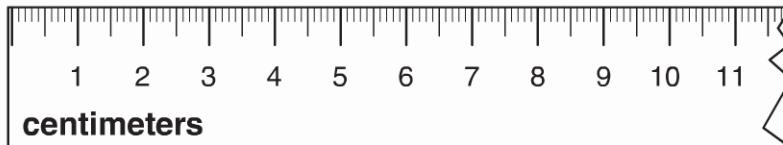
Pistas

Estimar medidas

Usa puntos de referencia para estimar medidas. Por ejemplo, tu dedo mide alrededor de 1 centímetro de ancho.

Cada marca señalada en la regla es de 1 centímetro. Las marcas pequeñas entre los centímetros son milímetros. 1 centímetro = 10 milímetros

1 centímetro mide 10 veces más que 1 milímetro.

1 milímetro mide $\frac{1}{10}$ o 0.1 de un centímetro.

Actividad

Pida a su hijo o hija que memorice las unidades básicas usuales y métricas de medida. Trabajen juntos para hacer tarjetas nemotécnicas con las unidades de medida, y pídale que relacione y compare unidades. Aproveche las actividades cotidianas, como las comidas o la cocina, para practicar. Por ejemplo, "Si comienzas con 1 cuarto de jugo y te bebes 3 tazas, ¿cuántas tazas de jugo quedan?"

Name _____

Measurement Benchmarks

Use benchmarks to choose the customary unit you would use to measure each.

1. height of a computer

_____ foot _____

2. weight of a table

_____

3. length of a semi-truck

_____

4. the amount of liquid a bathtub holds

_____

Customary Units	
ounce	yard
pound	mile
inch	gallon
foot	cup

Use benchmarks to choose the metric unit you would use to measure each.

5. mass of a grasshopper

_____

6. the amount of liquid a water bottle holds

_____

7. length of a soccer field

_____

8. length of a pencil

_____

Metric Units	
milliliter	centimeter
liter	meter
gram	kilometer
kilogram	

Circle the better estimate.

9. mass of a chicken egg

50 grams   50 kilograms

10. length of a car

12 miles   12 feet

11. amount of liquid a drinking glass holds

8 ounces   8 quarts

Complete the sentence. Write _more_ or _less_.

12. A camera has a length of _____ than one centimeter.

13. A bowling ball weighs _____ than one pound.

Problem Solving REAL WORLD

14. What is the better estimate for the mass of a textbook, 1 gram or 1 kilogram?

_____

15. What is the better estimate for the height of a desk, 1 meter or 1 kilometer?

_____

Lesson Check (CC.4.MD.1)

1. Which is the best estimate for the weight of a stapler?

   (A) 4 ounces

   (B) 4 pounds

   (C) 4 inches

   (D) 4 feet

2. Which is the best estimate for the length of a car?

   (A) 4 kilometers

   (B) 4 tons

   (C) 4 kilograms

   (D) 4 meters

Spiral Review (CC.4.NF.4c, CC.4.NF.6, CC.4.MD.5a, CC.4.MD.5b, CC.4.G.2)

3. Bart practices his trumpet $1\frac{1}{4}$ hours each day. How many hours will he practice in 6 days? (Lesson 8.4)

   (A) $8\frac{2}{4}$ hours

   (B) $7\frac{2}{4}$ hours

   (C) 7 hours

   (D) $6\frac{2}{4}$ hours

4. Millie collected 100 stamps from different countries. Thirty-two of the stamps are from countries in Africa. What is $\frac{32}{100}$ written as a decimal? (Lesson 9.2)

   (A) 32

   (B) 3.2

   (C) 0.32

   (D) 0.032

5. Diedre drew a quadrilateral with 4 right angles and 4 sides of the same length. What kind of polygon did Diedre draw?

   (Lesson 10.4)

   (A) square

   (B) trapezoid

   (C) hexagon

   (D) pentagon

6. How many degrees are in an angle that turns through $\frac{1}{2}$ of a circle? (Lesson 11.2)

   (A) 60°

   (B) 90°

   (C) 120°

   (D) 180°

Name _____

Customary Units of Length

Complete.

1. 3 feet = __**36**__ inches   Think: 1 foot = 12 inches, so 3 feet = 3 × 12 inches, or 36 inches

2. 2 yards = _____ feet

3. 8 feet = _____ inches

4. 7 yards = _____ feet

5. 4 feet = _____ inches

6. 15 yards = _____ feet

7. 10 feet = _____ inches

Compare using <, >, or =.

8. 3 yards ◯ 10 feet

9. 5 feet ◯ 60 inches

10. 8 yards ◯ 20 feet

11. 3 feet ◯ 10 inches

12. 3 yards ◯ 21 feet

13. 6 feet ◯ 72 inches

Problem Solving REAL WORLD

14. Carla has two lengths of ribbon. One ribbon is 2 feet long. The other ribbon is 30 inches long. Which length of ribbon is longer? **Explain.**

_____

_____

_____

_____

15. A football player gained 2 yards on one play. On the next play, he gained 5 feet. Was his gain greater on the first play or the second play? **Explain.**

_____

_____

_____

_____

Lesson Check (CC.4.MD.1)

1. Marta has 14 feet of wire to use to make necklaces. She needs to know the length in inches so she can determine how many necklaces to make. How many inches of wire does Marta have?

(A) 42 inches   (C) 168 inches

(B) 84 inches   (D) 504 inches

2. Jarod bought 8 yards of ribbon. He needs 200 inches to use to make curtains. How many inches of ribbon does he have?

(A) 8 inches   (C) 96 inches

(B) 80 inches   (D) 288 inches

Spiral Review (CC.4.NF.6, CC.4.MD.1, CC.4.MD.2, CC.4.MD.5a)

3. Which describes the turn shown below? **(Lesson 11.1)**
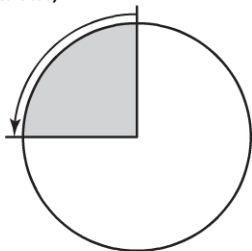
(A) $\frac{1}{4}$ turn counterclockwise

(B) $\frac{1}{4}$ turn clockwise

(C) $\frac{1}{2}$ turn clockwise

(D) $\frac{3}{4}$ turn counterclockwise

4. Which decimal represents the shaded part of the model below? **(Lesson 9.1)**

(A) 0.03

(B) 0.3

(C) 0.33

(D) 0.7
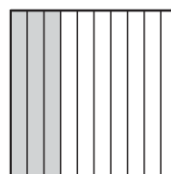
5. Three sisters shared $3.60 equally. How much did each sister get? **(Lesson 9.5)**

(A) $1.00

(B) $1.20

(C) $1.80

(D) $10.80

6. Which is the best estimate for the width of your index finger? **(Lesson 12.1)**

(A) 1 millimeter

(B) 1 gram

(C) 1 centimeter

(D) 1 liter

Customary Units of Weight

Complete.

1. 5 pounds = _____**80**_____ ounces

   Think: 1 pound = 16 ounces, so
   5 pounds = 5 × 16 ounces, or 80 ounces

2. 7 tons = _____ pounds

3. 2 pounds = _____ ounces

4. 3 tons = _____ pounds

5. 10 pounds = _____ ounces

6. 5 tons = _____ pounds

7. 7 pounds = _____ ounces

Compare using <, >, or =.

8. 8 pounds ◯ 80 ounces

9. 1 ton ◯ 100 pounds

10. 3 pounds ◯ 50 ounces

11. 5 tons ◯ 1,000 pounds

12. 16 pounds ◯ 256 ounces

13. 8 tons ◯ 16,000 pounds

Problem Solving REAL WORLD

14. A company that makes steel girders can produce 6 tons of girders in one day. How many pounds is this?

    _____

15. Larry's baby sister weighed 6 pounds at birth. How many ounces did the baby weigh?

    _____

Lesson Check (CC.4.MD.1)

1. Ann bought 2 pounds of cheese to make lasagna. The recipe gives the amount of cheese needed in ounces. How many ounces of cheese did she buy?

Ⓐ 20 ounces

Ⓑ 32 ounces

Ⓒ 40 ounces

Ⓓ 64 ounces

2. A school bus weighs 7 tons. The weight limit for a bridge is given in pounds. What is this weight of the bus in pounds?

Ⓐ 700 pounds

Ⓑ 1,400 pounds

Ⓒ 7,000 pounds

Ⓓ 14,000 pounds

Spiral Review (CC.4.NF.4c, CC.4.MD.1, CC.4.MD.6, CC.4.G.3)

3. What is the measure of ∠EHG? (Lesson 11.3)

Ⓐ 60° Ⓒ 120°

Ⓑ 100° Ⓓ 130°

4. How many lines of symmetry does the square below have? (Lesson 10.6)

Ⓐ 0 Ⓒ 4

Ⓑ 2 Ⓓ 6
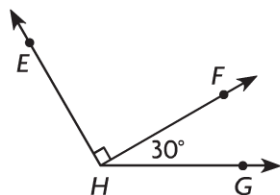
5. To make dough, Reba needs $2\frac{1}{2}$ cups of flour. How much flour does she need to make 5 batches of dough? (Lesson 8.4)

Ⓐ $14\frac{1}{2}$ cups

Ⓑ $12\frac{1}{2}$ cups

Ⓒ $11\frac{1}{2}$ cups

Ⓓ $10\frac{1}{2}$ cups

6. Judi's father is 6 feet tall. The minimum height to ride a rollercoaster is given in inches. How many inches tall is Judi's father? (Lesson 12.2)

Ⓐ 60 inches

Ⓑ 66 inches

Ⓒ 72 inches

Ⓓ 216 inches

Customary Units of Liquid Volume

Complete.

1. 6 gallons = __24__ quarts

Think: 1 gallon = 4 quarts,
so 6 gallons = 6 × 4 quarts, or 24 quarts

2. 12 quarts = _____ pints

3. 6 cups = _____ fluid ounces

4. 9 pints = _____ cups

5. 10 quarts = _____ cups

6. 5 gallons = _____ pints

7. 3 gallons = _____ cups

Compare using <, >, or =.

8. 6 pints ◯ 60 fluid ounces

9. 3 gallons ◯ 30 quarts

10. 5 quarts ◯ 20 cups

11. 6 cups ◯ 12 pints

12. 8 quarts ◯ 16 pints

13. 6 gallons ◯ 96 pints

Problem Solving REAL WORLD

14. A chef makes $1\frac{1}{2}$ gallons of soup in a large pot. How many 1-cup servings can the chef get from this large pot of soup?

15. Kendra's water bottle contains 2 quarts of water. She wants to add drink mix to it, but the directions for the drink mix give the amount of water in fluid ounces. How many fluid ounces are in her bottle?

_____

_____

Lesson Check (CC.4.MD.1)

1. Joshua drinks 8 cups of water a day. The recommended daily amount is given in fluid ounces. How many fluid ounces of water does he drink each day?

   (A) 16 fluid ounces

   (B) 32 fluid ounces

   (C) 64 fluid ounces

   (D) 128 fluid ounces

2. A cafeteria used 5 gallons of milk in preparing lunch. How many 1-quart containers of milk did the cafeteria use?

   (A) 10

   (B) 20

   (C) 40

   (D) 80

Spiral Review (CC.4.NF.4a, CC.4.NF.6, CC.4.MD.1, CC.4.G.1)

3. Roy uses $\frac{1}{4}$ cup of batter for each muffin. Which list shows the amounts of batter he will use depending on the number of muffins he makes? (Lesson 8.1)

   (A) $\frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{7}, \frac{1}{8}$

   (B) $\frac{1}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4}, \frac{5}{4}$

   (C) $\frac{1}{4}, \frac{2}{8}, \frac{3}{12}, \frac{4}{16}, \frac{5}{20}$

   (D) $\frac{1}{4}, \frac{2}{8}, \frac{4}{16}, \frac{6}{24}, \frac{8}{32}$

4. Beth has $\frac{7}{100}$ of a dollar. Which shows the amount of money Beth has? (Lesson 9.4)

   (A) $7.00

   (B) $0.70

   (C) $0.07

   (D) $0.007

5. Name the figure that Enrico drew below. (Lesson 10.1)

   ●———→

   (A) a ray

   (B) a line

   (C) a line segment

   (D) an octagon

6. A hippopotamus weighs 4 tons. Feeding instructions are given for weights in pounds. How many pounds does the hippopotamus weigh? (Lesson 12.3)

   (A) 4,000 pounds

   (B) 6,000 pounds

   (C) 8,000 pounds

   (D) 12,000 pounds

Name _____

Line Plots

1. Some students compared the time they spend riding the school bus. Complete the tally table and line plot to show the data.

Time Spent on School Bus (in hours)
$\frac{1}{6}$, $\frac{3}{6}$, $\frac{4}{6}$, $\frac{2}{6}$, $\frac{3}{6}$, $\frac{1}{6}$, $\frac{3}{6}$, $\frac{3}{6}$

Time Spent on School Bus	
Time (in hours)	**Tally**
$\frac{1}{6}$	||
$\frac{2}{6}$	
$\frac{3}{6}$	
$\frac{4}{6}$	
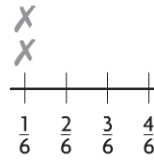
Time Spent on School Bus (in hours)

Use your line plot for 2 and 3.

2. How many students compared times? _____

3. What is the difference between the longest time and shortest

   time students spent riding the bus? _____

Problem Solving REAL WORLD

For 4–5, make a tally table on a separate sheet of paper.
Make a line plot in the space below the problem.

4.

Milk Drunk at Lunch (in quarts)
$\frac{1}{8}$, $\frac{2}{8}$, $\frac{2}{8}$, $\frac{4}{8}$, $\frac{1}{8}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{2}{8}$, $\frac{3}{8}$, $\frac{2}{8}$
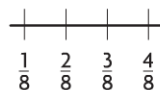
Milk Drunk at Lunch (in quarts)

5.

Distance Between Stops for a Rural Mail Carrier (in miles)
$\frac{3}{10}$, $\frac{4}{10}$, $\frac{5}{10}$, $\frac{1}{10}$, $\frac{5}{10}$, $\frac{4}{10}$, $\frac{4}{10}$, $\frac{3}{10}$

Distance Between Stops for a Rural Mail Carrier (in miles)

Lesson Check (CC.4.MD.4)

Use the line plot for 1 and 2.

1. How many students were reading during study time?

   (A) 5   (C) 7

   (B) 6   (D) 8

2. What is the difference between the longest time and shortest time spent reading?

   (A) $\frac{4}{8}$ hour   (C) $\frac{2}{8}$ hour

   (B) $\frac{3}{8}$ hour   (D) $\frac{1}{8}$ hour

```
                X
    X       X   X
    X   X   X   X
    +---+---+---+---+
    1   2   3   4
    8   8   8   8
```

Time Spent Reading During Study Time (in hours)

Spiral Review (CC.4.NF.5, CC.4.MD.1)

3. Bridget is allowed to play on-line games for $\frac{75}{100}$ of an hour each day. Which shows that fraction as a decimal? **(Lesson 9.3)**

   (A) 75.0

   (B) 7.50

   (C) 0.75

   (D) 0.075

4. Bobby's collection of sports cards has $\frac{3}{10}$ baseball cards and $\frac{39}{100}$ football cards. The rest are soccer cards. What fraction of Bobby's sports cards are baseball or football cards? **(Lesson 9.6)**

   (A) $\frac{9}{100}$ (C) $\frac{52}{100}$

   (B) $\frac{42}{100}$ (D) $\frac{69}{100}$

5. Jeremy gives his horse 12 gallons of water each day. How many 1-quart pails of water is that? **(Lesson 12.4)**

   (A) 24   (C) 72

   (B) 48   (D) 96

6. An iguana at a pet store is 5 feet long. Measurements for iguana cages are given in inches. How many inches long is the iguana? **(Lesson 12.2)**

   (A) 45 inches   (C) 60 inches

   (B) 50 inches   (D) 72 inches

Metric Units of Length

Complete.

1. 4 meters = ___**400**___ centimeters

Think: 1 meter = 100 centimeters, so 4 meters = 4 × 100 centimeters, or 400 centimeters

2. 8 centimeters = _____ millimeters

3. 5 meters = _____ decimeters

4. 9 meters = _____ millimeters

5. 7 meters = _____ centimeters

Compare using <, >, or =.

6. 8 meters ◯ 80 centimeters

7. 3 decimeters ◯ 30 centimeters

8. 4 meters ◯ 450 centimeters

9. 90 centimeters ◯ 9 millimeters

Describe the length in meters. Write your answer as a fraction and as a decimal.

10. 43 centimeters = _____ or

_____ meter

11. 6 decimeters = _____ **or**

_____ meter

12. 8 centimeters = _____ or

_____ meter

13. 3 decimeters = _____ or

_____ meter

Problem Solving REAL WORLD

14. A flagpole is 4 meters tall. How many centimeters tall is the flagpole?

_____

15. A new building is 25 meters tall. How many decimeters tall is the building?

_____

Lesson Check (CC.4.MD.1)

1. A pencil is 15 centimeters long. How many millimeters long is that pencil?

   Ⓐ   1.5 millimeters

   Ⓑ   15 millimeters

   Ⓒ   150 millimeters

   Ⓓ 1,500 millimeters

2. John's father is 2 meters tall. How many centimeters tall is John's father?

   Ⓐ 2,000 centimeters

   Ⓑ   200 centimeters

   Ⓒ   20 centimeters

   Ⓓ   2 centimeters

Spiral Review (CC.4.NF.4b, CC.4.NF.7, CC.4.MD.4)

3. Bruce reads for $\frac{3}{4}$ hour each night. How long will he read in 4 nights? (Lesson 8.3)

   Ⓐ $\frac{3}{16}$ hour

   Ⓑ $\frac{7}{4}$ hours

   Ⓒ $\frac{9}{4}$ hours

   Ⓓ $\frac{12}{4}$ hours

4. Mark jogged 0.6 mile. Caroline jogged 0.49 mile. Which inequality correctly compares the distances they jogged?
   (Lesson 9.7)

   Ⓐ $0.6 = 0.49$

   Ⓑ $0.6 > 0.49$

   Ⓒ $0.6 < 0.49$

   Ⓓ $0.6 + 0.49 = 1.09$

Use the line plot for 5 and 6.

5. How many lawns were mowed? (Lesson 12.5)

   Ⓐ 8   Ⓒ 10

   Ⓑ 9   Ⓓ 11

6. What is the difference between the greatest amount and least amount of gasoline used to mow lawns? (Lesson 12.5)

   Ⓐ $\frac{6}{8}$ gallon   Ⓒ $\frac{4}{8}$ gallon

   Ⓑ $\frac{5}{8}$ gallon   Ⓓ $\frac{3}{8}$ gallon
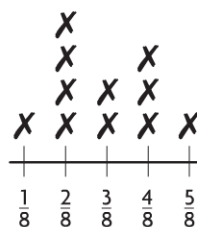
Gasoline Used to Mow Lawns in May (in Gallons)

Name _____

Metric Units of Mass and Liquid Volume

Complete.

1. 5 liters = __**5,000**__ milliliters

Think: 1 liter = 1,000 milliliters,
so 5 liters = 5 × 1,000 milliliters, or 5,000 milliliters

2. 3 kilograms = _____ grams

3. 8 liters = _____ milliliters

4. 7 kilograms = _____ grams

5. 9 liters = _____ milliliters

6. 2 liters = _____ milliliters

7. 6 kilograms = _____ grams

Compare using <, >, or =.

8. 8 kilograms ◯ 850 grams

9. 3 liters ◯ 3,500 milliliters

10. 1 kilogram ◯ 1,000 grams

11. 5 liters ◯ 520 milliliters

Problem Solving REAL WORLD

12. Kenny buys four 1-liter bottles of water. How many milliliters of water does Kenny buy?

_____

13. Mrs. Jones bought three 2-kilogram packages of flour. How many grams of flour did she buy?

_____

14. Colleen bought 8 kilograms of apples and 2.5 kilograms of pears. How many more grams of apples than pears did she buy?

_____

15. Dave uses 500 milliliters of juice for a punch recipe. He mixes it with 2 liters of ginger ale. How many milliliters of punch does he make?

_____

Lesson Check (CC.4.MD.1, CC.4.MD.2)

1. During his hike, Milt drank 1 liter of water and 1 liter of sports drink. How many milliliters of liquid did he drink in all?

   (A)   20 milliliters

   (B)   200 milliliters

   (C)   2,000 milliliters

   (D) 20,000 milliliters

2. Larinda cooked a 4-kilogram roast. The roast left over after the meal weighed 3 kilograms. How many grams of roast were eaten during that meal?

   (A) 7,000 grams

   (B) 1,000 grams

   (C)   700 grams

   (D)   100 grams

Spiral Review (CC.4.MD.1, CC.4.MD.6, CC.4.G.1)

3. Use a protractor to find the angle measure. (Lesson 11.3)

   (A) 15°   (C) 135°

   (B) 35°   (D) 145°
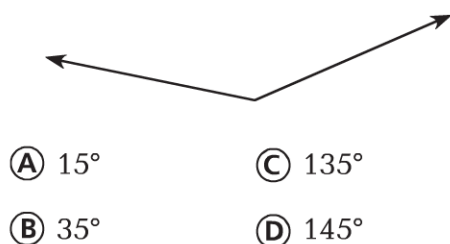
4. Which of the following shows parallel lines? (Lesson 10.3)
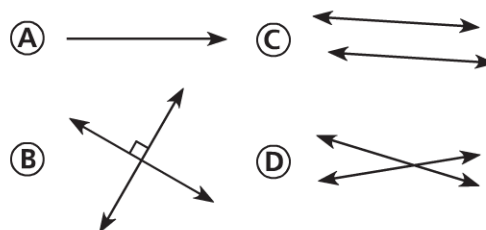
5. Carly bought 3 pounds of birdseed. How many ounces of birdseed did she buy? (Lesson 12.3)

   (A) 30 ounces

   (B) 36 ounces

   (C) 42 ounces

   (D) 48 ounces

6. A door is 8 decimeters wide. How wide is the door in centimeters? (Lesson 12.6)

   (A)   8 centimeters

   (B)   80 centimeters

   (C)   800 centimeters

   (D) 8,000 centimeters

Units of Time

Complete.

1. 6 minutes = __**360**__ seconds   Think: 1 minute = 60 seconds,
so 6 minutes = 6 × 60 seconds, or 360 seconds

2. 5 weeks = _____ days

3. 3 years = _____ weeks

4. 9 hours = _____ minutes

5. 9 minutes = _____ seconds

6. 5 years = _____ months

7. 7 days = _____ hours

Compare using <, >, or =.

8. 2 years ◯ 14 months

9. 3 hours ◯ 300 minutes

10. 2 days ◯ 48 hours

11. 6 years ◯ 300 weeks

12. 4 hours ◯ 400 minutes

13. 5 minutes ◯ 300 seconds

Problem Solving REAL WORLD

14. Jody practiced a piano piece for 500 seconds. Bill practiced a piano piece for 8 minutes. Who practiced longer? **Explain.**

_____

_____

_____

_____

15. Yvette's younger brother just turned 3 years old. Fred's brother is now 30 months old. Whose brother is older? **Explain.**

_____

_____

_____

_____

Lesson Check (CC.4.MD.1)

1. Glen rode his bike for 2 hours. For how many minutes did Glen ride his bike?

   (A) 60 minutes

   (B) 100 minutes

   (C) 120 minutes

   (D) 150 minutes

2. Tina says that vacation starts in exactly 4 weeks. In how many days does vacation start?

   (A) 28 days

   (B) 35 days

   (C) 42 days

   (D) 48 days

Spiral Review (CC.4.NF.3b, CC.4.NF.5, CC.4.MD.1, CC.4.MD.2)

3. Kayla bought $\frac{9}{4}$ pounds of apples. What is that weight as a mixed number? (Lesson 7.6)

   (A) $1\frac{1}{4}$ pounds

   (B) $1\frac{4}{9}$ pounds

   (C) $2\frac{1}{4}$ pounds

   (D) $2\frac{3}{4}$ pounds

4. Judy, Jeff, and Jim each earned $5.40 raking leaves. How much did they earn in all? (Lesson 9.5)

   (A) $1.60

   (B) $10.80

   (C) $15.20

   (D) $16.20

5. Melinda rode her bike $\frac{54}{100}$ mile to the library. Then she rode $\frac{4}{10}$ mile to the store. How far did Melinda ride her bike in all? (Lesson 9.6)

   (A) 0.14 mile

   (B) 0.58 mile

   (C) 0.94 mile

   (D) 1.04 miles

6. One day, the students drank 60 quarts of milk at lunch. How many pints of milk did the students drink? (Lesson 12.4)

   (A) 30 pints

   (B) 120 pints

   (C) 240 pints

   (D) 480 pints

Problem Solving · Elapsed Time

Read each problem and solve.

1. Molly started her piano lesson at 3:45 P.M. The lesson lasted 20 minutes. What time did the piano lesson end?

   Think: What do I need to find? How can I draw a diagram to help?

   5 min   10 min   15 min   20 min

   3:45 P.M.   3:50 P.M.   3:55 P.M.   4:00 P.M.   4:05 P.M.
   Start Time   End Time

   _____ **4:05 P.M.** _____

2. Brendan spent 24 minutes playing a computer game. He stopped playing at 3:55 P.M and went outside to ride his bike. What time did he start playing the computer game?

   _____

3. Aimee's karate class lasts 1 hour and 15 minutes and is over at 5:00 P.M. What time does Aimee's karate class start?

   _____

4. Mr. Giarmo left for work at 7:15 A.M. Twenty-five minutes later, he arrived at his work. What time did Mr. Giarmo arrive at his work?

   _____

5. Ms. Brown's flight left at 9:20 A.M. Her plane landed 1 hour and 23 minutes later. What time did her plane land?

   _____

Lesson Check (CC.4.MD.2)

1. Bobbie went snowboarding with friends at 10:10 A.M. They snowboarded for 1 hour and 43 minutes, and then stopped to eat lunch. What time did they stop for lunch?

   (A) 8:27 A.M.

   (B) 10:53 A.M.

   (C) 11:53 A.M.

   (D) 12:53 A.M.

2. The Cain family drove for 1 hour and 15 minutes and arrived at their camping spot at 3:44 P.M. What time did the Cain family start driving?

   (A) 4:59 P.M.

   (B) 2:44 P.M.

   (C) 2:39 P.M.

   (D) 2:29 P.M.

Spiral Review (CC.4.NF.4b, CC.4.NF.5, CC.4.MD.1, CC.4.MD.2)

3. A praying mantis can grow up to 15 centimeters long. How long is this in millimeters? (Lesson 12.6)

   (A) 15 millimeters

   (B) 150 millimeters

   (C) 1,500 millimeters

   (D) 15,000 millimeters

4. Thom's minestrone soup recipe makes 3 liters of soup. How many milliliters of soup is this? (Lesson 12.7)

   (A) 30 milliliters

   (B) 300 milliliters

   (C) 3,000 milliliters

   (D) 30,000 milliliters

5. Stewart walks $\frac{2}{3}$ mile each day. Which is a multiple of $\frac{2}{3}$? (Lesson 8.2)

   (A) $\frac{4}{3}$

   (B) $\frac{4}{6}$

   (C) $\frac{8}{10}$

   (D) $\frac{2}{12}$

6. Angelica colored in 0.60 of the squares on her grid. Which of the following expresses 0.60 as tenths in fraction form? (Lesson 9.3)

   (A) $\frac{60}{100}$

   (B) $\frac{60}{10}$

   (C) $\frac{6}{100}$

   (D) $\frac{6}{10}$

Mixed Measures

Complete.

1. 8 pounds 4 ounces = ____**132**____ ounces

Think: 8 pounds = 8 × 16 ounces, or 128 ounces.
128 ounces + 4 ounces = 132 ounces

2. 5 weeks 3 days = _____ days

3. 4 minutes 45 seconds = _____ seconds

4. 4 hours 30 minutes = _____ minutes

5. 3 tons 600 pounds = _____ pounds

6. 6 pints 1 cup = _____ cups

7. 7 pounds 12 ounces = _____ ounces

Add or subtract.

8.
$$\begin{array}{r} 9 \text{ gal } 1 \text{ qt} \\ + 6 \text{ gal } 1 \text{ qt} \\ \hline \end{array}$$

9.
$$\begin{array}{r} 12 \text{ lb } 5 \text{ oz} \\ - 7 \text{ lb } 10 \text{ oz} \\ \hline \end{array}$$

10.
$$\begin{array}{r} 8 \text{ hr } 3 \text{ min} \\ + 4 \text{ hr } 12 \text{ min} \\ \hline \end{array}$$

Problem Solving REAL WORLD

11. Michael's basketball team practiced for 2 hours 40 minutes yesterday and 3 hours 15 minutes today. How much longer did the team practice today than yesterday?
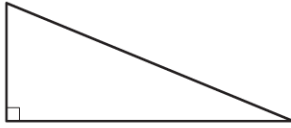
_____

12. Rhonda had a piece of ribbon that was 5 feet 3 inches long. She removed a 5-inch piece to use in her art project. What is the length of the piece of ribbon now?

_____

Lesson Check (CC.4.MD.2)

1. Marsha bought 1 pound 11 ounces of roast beef and 2 pounds 5 ounces of corned beef. How much more corned beef did she buy than roast beef?

   Ⓐ 16 ounces

   Ⓑ 10 ounces

   Ⓒ 7 ounces

   Ⓓ 6 ounces

2. Theodore says there are 2 weeks 5 days left in the year. How many days are left in the year?

   Ⓐ 14 days

   Ⓑ 15 days

   Ⓒ 19 days

   Ⓓ 25 days

Spiral Review (CC.4.NF.7, CC.4.MD.1, CC.4.MD.2, CC.4.G.2)

3. On one grid, 0.5 of the squares are shaded. On another grid, 0.05 of the squares are shaded. Which statement is true? (Lesson 9.7)

   Ⓐ $0.05 > 0.5$

   Ⓑ $0.05 = 0.5$

   Ⓒ $0.05 < 0.5$

   Ⓓ $0.05 + 0.5 = 1.0$

4. Classify the triangle shown below. (Lesson 10.2)

   Ⓐ right

   Ⓑ acute

   Ⓒ equilateral

   Ⓓ obtuse

5. Sahil's brother is 3 years old. How many weeks old is his brother? (Lesson 12.8)

   Ⓐ 30 weeks

   Ⓑ 36 weeks

   Ⓒ 90 weeks

   Ⓓ 156 weeks

6. Sierra's swimming lessons last 1 hour 20 minutes. She finished her lesson at 10:50 A.M. At what time did her lesson start? (Lesson 12.9)

   Ⓐ 9:30 A.M.

   Ⓑ 9:50 A.M.

   Ⓒ 10:30 A.M.

   Ⓓ 12:10 A.M.

Patterns in Measurement Units

Each table shows a pattern for two customary units of time or volume. Label the columns of the table.

1.

Gallons	Quarts
1	4
2	8
3	12
4	16
5	20

2.

1	12
2	24
3	36
4	48
5	60

3.

1	2
2	4
3	6
4	8
5	10

4.

1	7
2	14
3	21
4	28
5	35

Problem Solving REAL WORLD

Use the table for 5 and 6.

5. Marguerite made the table to compare two metric measures of length. Name a pair of units Marguerite could be comparing.

_____

6. Name another pair of metric units of length that have the same relationship.

_____

?	?
1	10
2	20
3	30
4	40
5	50

TEST PREP

Lesson Check (CC.4.MD.1)

1. Joanne made a table to relate two units of measure. The number pairs in her table are 1 and 16, 2 and 32, 3 and 48, 4 and 64. Which are the best labels for Joanne's table?

(A) Cups, Fluid Ounces

(B) Gallons, Quarts

(C) Pounds, Ounces

(D) Yards, Inches

2. Cade made a table to relate two units of time. The number pairs in his table are 1 and 24, 2 and 48, 3 and 72, 4 and 96. Which are the best labels for Cade's table?

(A) Days, Hours

(B) Days, Weeks

(C) Years, Months

(D) Years, Weeks

Spiral Review (CC.4.NF.6, CC.4.MD.1, CC.4.MD.2, CC.4.MD.5a)

3. Anita has 2 quarters, 1 nickel, and 4 pennies. Write Anita's total amount as a fraction of a dollar. **(Lesson 9.4)**

(A) $\frac{39}{100}$

(B) $\frac{54}{100}$

(C) $\frac{59}{100}$

(D) $\frac{84}{100}$

4. The minute hand of a clock moves from 12 to 6. Which describes the turn the minute hand makes? **(Lesson 11.1)**

(A) $\frac{1}{4}$ turn

(B) $\frac{1}{2}$ turn

(C) $\frac{3}{4}$ turn

(D) 1 full turn

5. Roderick has a dog that has a mass of 9 kilograms. What is the mass of the dog in grams? **(Lesson 12.7)**

(A) 9 grams

(B) 900 grams

(C) 9,000 grams

(D) 90,000 grams

6. Kari mixed 3 gallons 2 quarts of lemon-lime drink with 2 gallons 3 quarts of pink lemonade to make punch. How much more lemon-lime drink did Kari use than pink lemonade? **(Lesson 12.10)**

(A) 3 quarts

(B) 4 quarts

(C) 1 gallon 1 quart

(D) 1 gallon 2 quarts