Dear Family,

Throughout the next few weeks, our math class will be learning about angles and angle measures. We will also learn to use a protractor to measure and draw angles.

You can expect to see homework in which students find and compute with angle measures.

Here is a sample of how your child will be taught how to relate degrees to fractional parts of a circle.
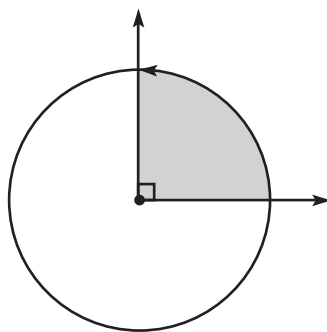
🔑 MODEL Find Angle Measures

Find the measure of a right angle.

STEP 1

A right angle turns $\frac{1}{4}$ through a circle. Write $\frac{1}{4}$ as an equivalent fraction with 360 in the denominator: $\frac{1}{4} = \frac{90}{360}$

STEP 2

A $\frac{1}{360}$ turn measures 1º. So, a $\frac{90}{360}$ turn measures 90º.

Tips

Classifying Angles

An *acute* angle measures *less than* 90º. An *obtuse* angle measures *more than* 90º and *less than* 180º. A *straight* angle measures 180º.

Activity

Help your child measure angles in pictures of buildings and bridges and decide whether certain angle measures are more common. Then have your child draw his or her own building or bridge design and label each angle measure.

Carta
para la casa

Querida familia,

Durante las próximas semanas, en la clase de matemáticas aprenderemos sobre ángulos y medidas de los ángulos. También aprenderemos a usar un transportador y a medir y trazar ángulos.

Llevaré a casa tareas en las que tenga que hallar y hacer cálculos con medidas de ángulos.

Este es un ejemplo de cómo vamos a relacionar los grados con las partes fraccionarias de un círculo.
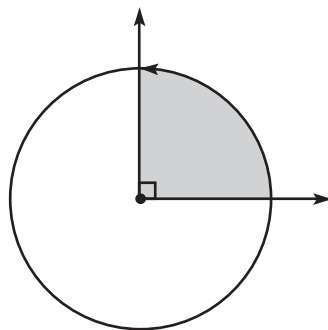
🔑 MODELO   Hallar medidas de ángulos

Halla la medida de un ángulo recto.

PASO 1

Un ángulo recto gira $\frac{1}{4}$ de un círculo. Escribe $\frac{1}{4}$ como una fracción equivalente con 360 en el denominador: $\frac{1}{4} = \frac{90}{360}$

PASO 2

Un giro de $\frac{1}{360}$ mide 1°. Por lo tanto, un giro de $\frac{90}{360}$ mide 90°.

Pistas

Clasificar ángulos

Un ángulo *agudo* mide *menos de* 90°. Un ángulo *obtuso* mide *más de* 90° y *menos de* 180°. Un ángulo *llano* mide 180°.
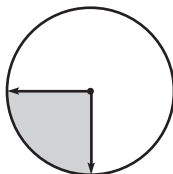
Actividad

Ayude a su hijo o hija a medir ángulos en dibujos de edificios y puentes y decidan si ciertas medidas de ángulos son más comunes. Luego pídale que dibuje su propio diseño de edificio o puente y que le ponga nombre a cada medida de ángulo.

Name _____

Angles and Fractional Parts of a Circle

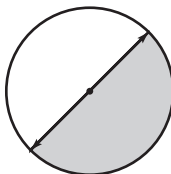**Tell what fraction of the circle the shaded angle represents.**
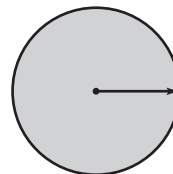
1.

$$\frac{1}{4}$$

_____

2.

_____

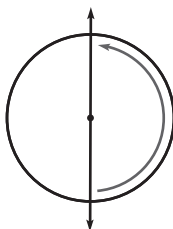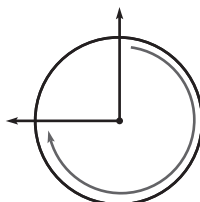**3.**

_____

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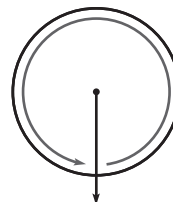
4.

_____

_____

5.

_____

_____

6.

_____

_____

Problem Solving REAL WORLD

7. Shelley exercised for 15 minutes. Describe the turn the minute hand made.

Start   End

_____

_____

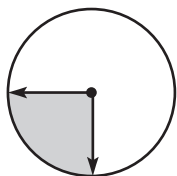**8.** Mark took 30 minutes to finish lunch. Describe the turn the minute hand made.

Start   End

_____
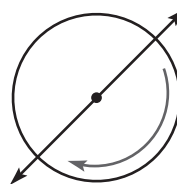
_____

Lesson Check

1. What fraction of the circle does the shaded angle represent?

(A) $\frac{1}{1}$ or 1 **(C)** $\frac{1}{2}$

(B) $\frac{3}{4}$ **(D)** $\frac{1}{4}$

2. Which describes the turn shown below?

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

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

(C) $\frac{1}{4}$ turn counterclockwise

(D) $\frac{1}{2}$ turn counterclockwise

Spiral Review

3. Which shows $\frac{2}{3}$ and $\frac{3}{4}$ written as a pair of fractions with a common denominator?
(Lesson 6.4)

(A) $\frac{2}{3}$ and $\frac{4}{3}$

(B) $\frac{6}{9}$ and $\frac{6}{8}$

(C) $\frac{2}{12}$ and $\frac{3}{12}$

(D) $\frac{8}{12}$ and $\frac{9}{12}$

4. Raymond bought $\frac{3}{4}$ of a dozen rolls. How many rolls did he buy? **(Lesson 8.4)**

(A) 3

(B) 6

(C) 7

(D) 9

5. Which of the following lists all the factors of 18? **(Lesson 5.1)**

(A) 1, 2, 4, 9, 18

(B) 1, 2, 3, 6, 9, 18

(C) 2, 3, 6, 9

(D) 1, 3, 5, 9, 18

6. Jonathan rode 1.05 miles on Friday, 1.5 miles on Saturday, 1.25 miles on Monday, and 1.1 miles on Tuesday. On which day did he ride the shortest distance? **(Lesson 9.7)**
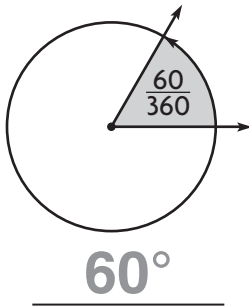
(A) Monday **(C)** Friday

(B) Tuesday **(D)** Saturday

Name _____

Degrees

Tell the measure of the angle in degrees.

1.

$\frac{60}{360}$
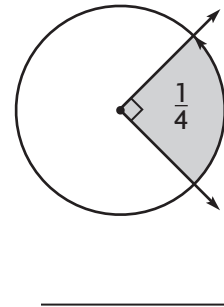
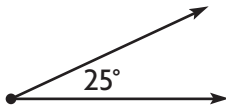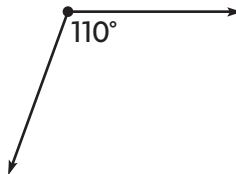**60°**
_____

2.

$\frac{1}{2}$

_____

3.

$\frac{1}{4}$

_____
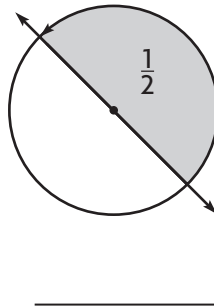
Classify the angle. Write *acute*, *obtuse*, *right*, or *straight*.

4.

25°

_____

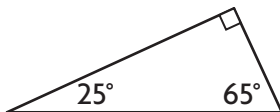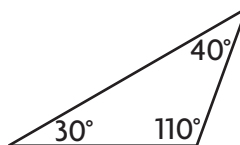**5.**

110°

_____

6.

60°

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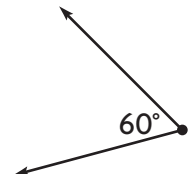
Classify the triangle. Write *acute*, *obtuse*, or *right*.

7.

25°   65°

_____

8.

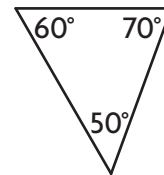40°

30°   110°

_____

9.

60°   70°

50°

_____

Problem Solving REAL WORLD

Ann started reading at 4:00 P.M. and finished at 4:20 P.M.

10. Through what fraction of a circle did the
minute hand turn?

_____

11. How many degrees did the minute
hand turn?

_____

Start   **End**

Lesson Check

1. What kind of angle is shown?

180°

(A) acute

(B) obtuse

(C) right

(D) straight

2. How many degrees are in an angle that turns through $\frac{1}{4}$ of a circle?

(A) 45°

(B) 90°

(C) 180°

(D) 270°

Spiral Review

3. Mae bought 15 football cards and 18 baseball cards. She separated them into 3 equal groups. How many sports cards are in each group? **(Lesson 4.12)**

(A) 5

(B) 6

(C) 11

(D) 12

4. Each part of a race is $\frac{1}{10}$ mile long. Marsha finished 5 parts of the race. How far did Marsha race? **(Lesson 8.1)**

(A) $\frac{1}{10}$ mile

(B) $\frac{5}{12}$ mile

(C) $\frac{1}{2}$ mile

(D) $5\frac{1}{10}$ miles

5. Jeff said his city got $\frac{11}{3}$ inches of snow. Which shows this fraction written as a mixed number? **(Lesson 7.6)**

(A) $3\frac{2}{3}$

(B) $3\frac{1}{3}$

(C) $2\frac{2}{3}$

(D) $1\frac{2}{3}$

6. Amy ran $\frac{3}{4}$ mile. Which decimal shows how many miles she ran? **(Lesson 9.3)**

(A) 0.25 mile

(B) 0.34 mile

(C) 0.5 mile

(D) 0.75 mile
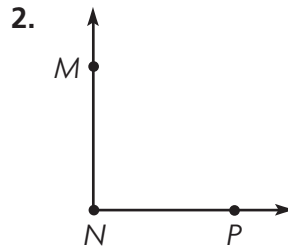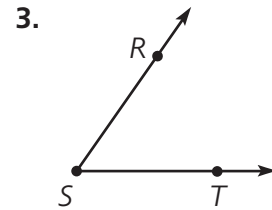
Name _____

Measure and Draw Angles

Use a protractor to find the angle measure.

1.

A

B   C

m∠ABC = __**120°**__

2.

M

N   P

m∠MNP = _____

3.

R

S   T
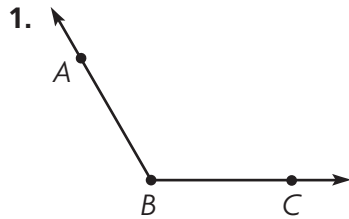
m∠RST = _____

Use a protractor to draw the angle.

4. 40°

5. 170°

Draw an example of each. Label the angle with its measure.

6. a right angle

7. an acute angle

Problem Solving REAL WORLD

The drawing shows the angles a stair tread makes with a support board along a wall. Use your protractor to measure the angles.
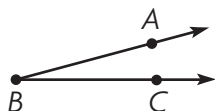
8. What is the measure of ∠A? _____

9. What is the measure of ∠B? _____

A

B
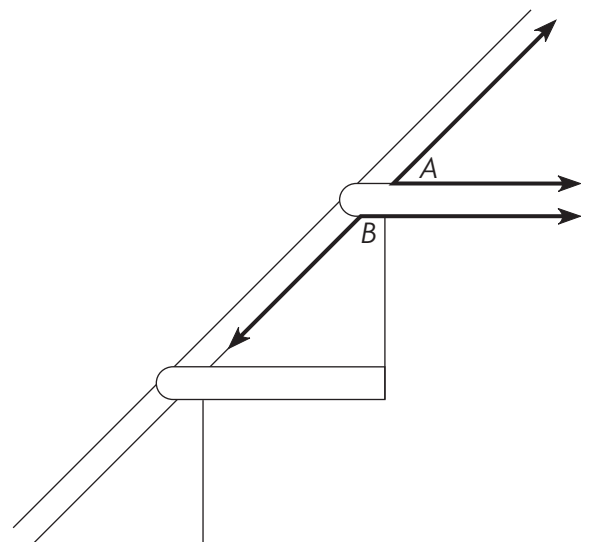
Lesson Check

1. What is the measure of ∠*ABC*?

(A) 15° (C) 155°

(B) 25° (D) 165°

2. What is the measure of ∠*XYZ*?

(A) 20° (C) 150°

(B) 30° (D) 160°

Spiral Review

3. Derrick earned $1,472 during the 4 weeks he had his summer job. If he earned the same amount each week, how much did he earn each week?

(Lesson 4.10)

(A) $360

(B) $368

(C) $3,680

(D) $5,888

4. Arthur baked $1\frac{7}{12}$ dozen muffins. Nina baked $1\frac{1}{12}$ dozen muffins. How many dozen muffins did they bake in all?
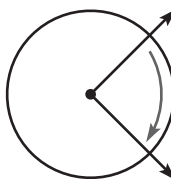
(Lesson 7.7)

(A) $3\frac{2}{3}$

(B) $2\frac{2}{3}$

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

(D) $\frac{6}{12}$

5. Trisha drew the figure below. What figure did she draw? **(Lesson 10.1)**

(A) line segment *ST*

(B) ray *ST*

(C) ray *TS*

(D) line *TS*

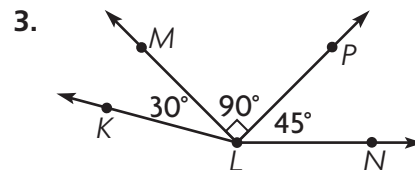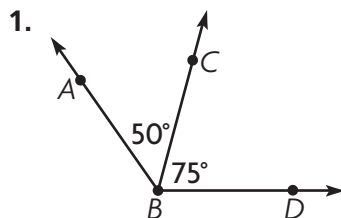**6.** Which describes the turn shown by the angle? **(Lesson 11.1)**

(A) 1 full turn clockwise

(B) $\frac{3}{4}$ turn clockwise

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

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

Name _____

Join and Separate Angles

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

1.

A
C
50°
75°
B
D

2.

F
H
140°
20°
G
J

3.

M
P
30°
90°
45°
K
L
N

$50° + 75° = 125°$

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 = _____
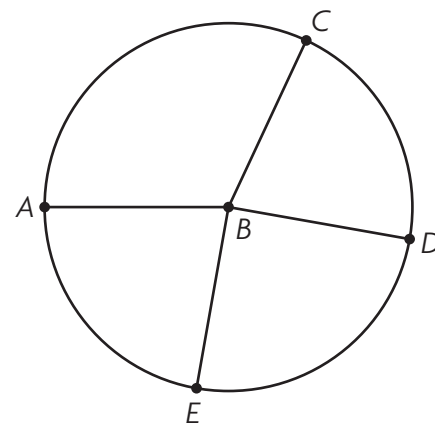
8. Write the sum of the angle measures as an equation.

_____

C
A
B
D
E

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.
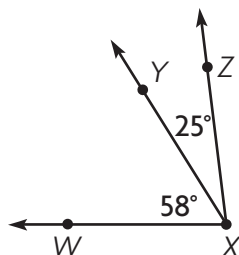
_____

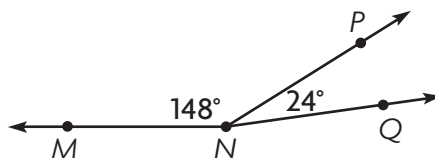**10.** Write an equation to find the measure of the total angle.

_____
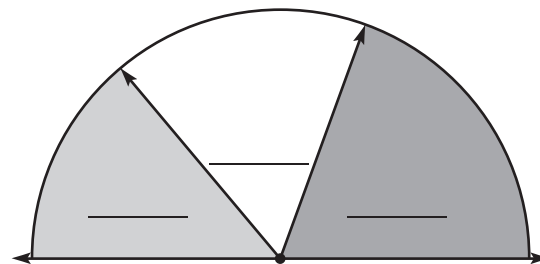
Lesson Check

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

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)**
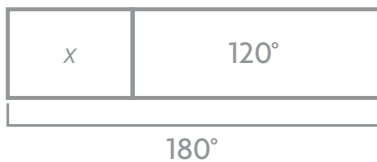
- Ⓐ 45°
- Ⓑ 90°
- Ⓒ 180°
- Ⓓ 270°

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?
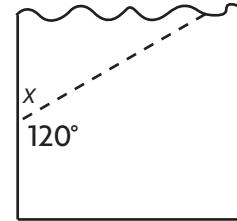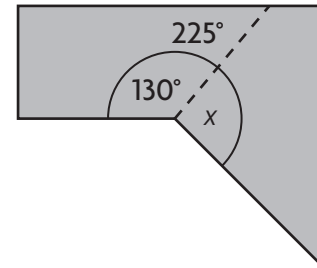
Draw a bar model to represent the problem.

x	120°

180°

$$x + 120° = 180°$$
$$x = 180° - 120°$$
$$x = 60°$$

x
120°

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°

_____
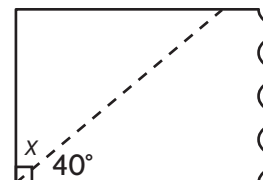
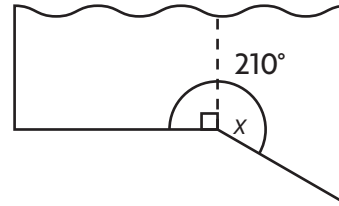## Lesson Check

1. Angelo cuts a triangle from a sheet of paper as shown. What is the measure of ∠x in the triangle?
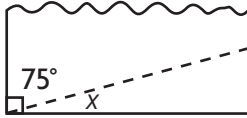
- Ⓐ 15°
- Ⓑ 25°
- Ⓒ 75°
- Ⓓ 105°

2. Cindy cuts a piece of wood as shown. What is the angle measure of the piece left over?

- Ⓐ 30°
- Ⓒ 120°
- Ⓑ 90°
- Ⓓ 150°

Spiral Review

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

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

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

- Ⓐ 0.07 mile
- Ⓑ 0.1 mile
- Ⓒ 0.7 mile
- Ⓓ 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)**

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

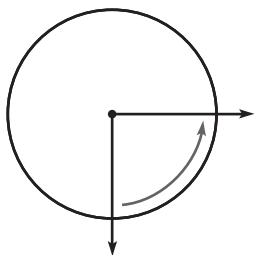6. What is the measure of ∠ABC? **(Lesson 11.4)**

- Ⓐ 32°
- Ⓒ 88°
- Ⓑ 84°
- Ⓓ 94°
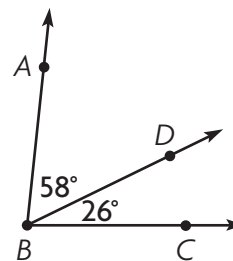
Chapter 11 Extra Practice

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.
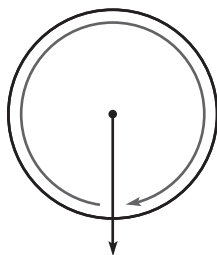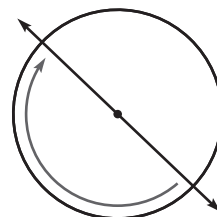
1.

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
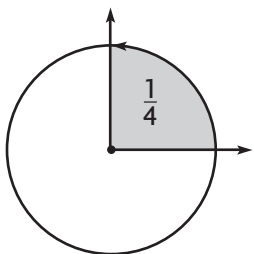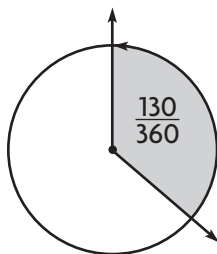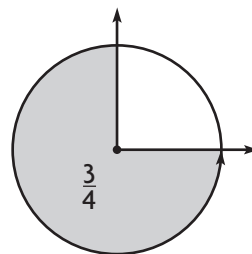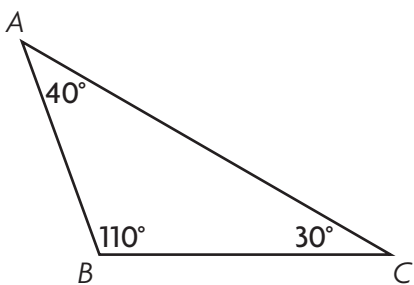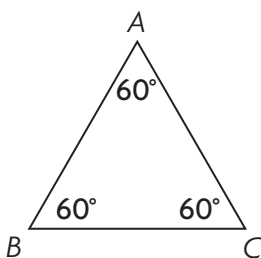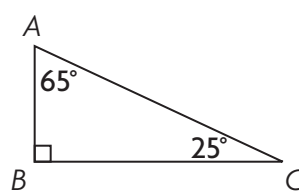
Lesson 11.3

1. Use a protractor to find the angle measure.

m∠PQR = _____

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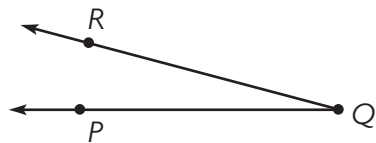
Lesson 11.4

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

1.

_____

_____

m∠LMN = _____

2.

_____

_____

m∠STU = _____

3.

_____

_____
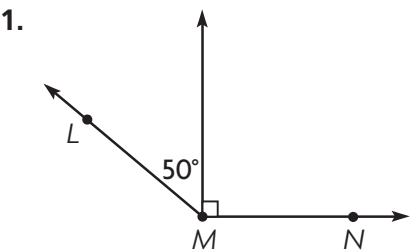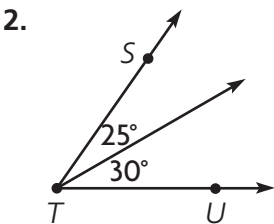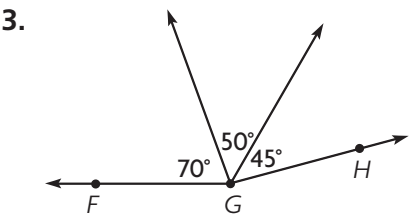
m∠FGH = _____

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?

_____