Name: _____   **Date:** _____

Lesson 6.7   Fraction of a Set

What fraction of each set of objects is shaded? Express your answer in simplest form.
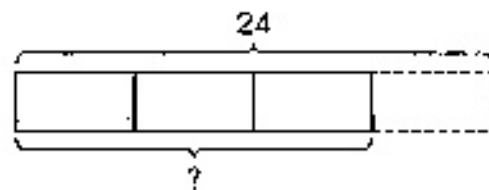
1.

2.

3.

4.

Use a model to help you answer each question.

— Example —

What is $\frac{3}{4}$ of 24?

4 units = 24
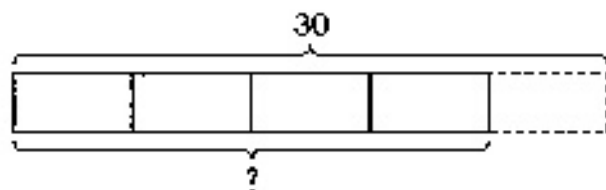1 unit = 6
3 units = 6 × 3 = 18

So, $\frac{3}{4}$ of 24 = 18.

24

?

5. What is $\frac{4}{5}$ of 30?

5 units = _____

1 unit = _____

4 units = _____

So, $\frac{4}{5}$ of 30 = _____.

30

?

6. What is $\frac{5}{6}$ of 48?   **7.** What is $\frac{5}{12}$ of 60?

Solve.

8. $\frac{2}{3} \times 45 =$ **9.** $\frac{4}{9} \times 36 =$

10. $\frac{2}{7} \times 35 =$ **11.** $\frac{3}{8} \times 32 =$

12. $\frac{5}{6} \times 60 =$ **13.** $\frac{3}{4} \times 36 =$

14. $\frac{7}{9} \times 45 =$ **15.** $\frac{3}{5} \times 40 =$

Name: _____ **Date:** _____

Lesson 6.8   Real-World Problems: Fractions

Solve. Show your work.

1. Arthur had $90. He spent $40 and gave $20 to his brother. What fraction of Arthur's money is left?

2. A baker has 20 pounds of sugar. He uses $\frac{3}{4}$ of the sugar to bake muffins. How much sugar does he have left?

3. Myo buys 6 goldfish and 4 angelfish.
  a. What fraction of the fish are goldfish?

  b. Myo buys 2 more goldfish. What fraction of the fish are angelfish?

4. Cheryl spends $\frac{3}{10}$ of her savings on a book, and $\frac{2}{5}$ on a pen. What fraction of her savings does Cheryl spend?

5. Of the vehicles on the road, $\frac{1}{2}$ are cars and $\frac{1}{8}$ are motorcycles. What fraction of the vehicles are not cars or motorcycles?

6. Allie's plant has a height of 6 meters. Rajon's plant grows $\frac{3}{10}$ meter higher. How high does Rajon's plant grow?

7. There are 10 packets of ham. Of the packets, $\frac{2}{5}$ are turkey ham. Each packet of turkey ham weighs $\frac{1}{3}$ pound. What is the total weight of the turkey ham?

8. Carla spends $\frac{6}{4}$ hours exercising every day for 12 days. She spends $\frac{1}{2}$ of her exercise time every day lifting weights. How much time does Carla spend lifting weights during the 12 days?
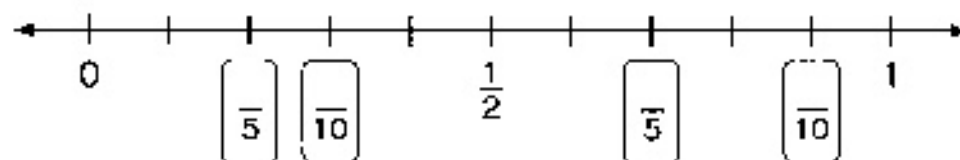
Name: _____   **Date:** _____

Lesson 6.9   Line Plots with Fractional Units

1.   This line has 8 equal intervals from 0 to 1. Fill in the missing fractional units
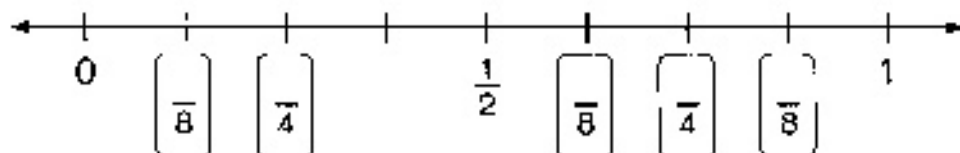
Fill in the blanks using the above line plot.

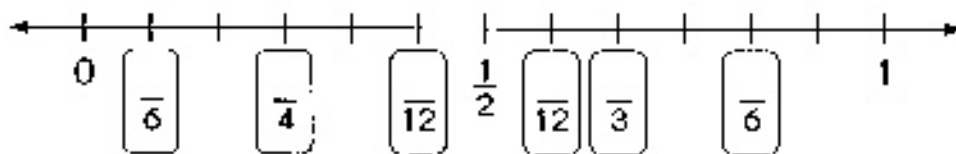**2.**   _____ $<$

3.   _____ $<$

4.   _____ $>$ _____

5.   _____ $>$

6. $\dfrac{1}{2} + \dfrac{5}{8} =$

7. $\dfrac{1}{4} + \dfrac{7}{8} =$

8. $\dfrac{7}{8} - \dfrac{3}{4} =$

9. $\dfrac{3}{4} - \dfrac{3}{8} =$

10.   This line has 10 equal intervals from 0 to 1. Fill in the missing fractional units.

Fill in the blanks using the above line plot.

11.   _____ $<$ _____

12.   _____ $<$

13.   .... _____ > _____ .

14.   _____   >

15. $\frac{3}{10} + \frac{4}{5} =$

16. $\frac{7}{10} + \frac{1}{2} =$

17. $\frac{9}{10} - \frac{1}{2} =$

18. $\frac{4}{5} - \frac{7}{10} =$

19.   This line has 12 equal intervals from 0 to 1. Fill in the missing fractional units.

Fill in the blanks using the above line plot.

20.   < .

21.   <

22.   <

23.   > _____ _

24. $\frac{5}{12} + \frac{5}{6} =$

25. $\frac{7}{12} + \frac{1}{4} =$

26. $\frac{2}{3} - \frac{7}{12} =$

27. $\frac{11}{12} \quad \frac{1}{2} =$

Recall Prior Knowledge

Defining a point, line, and a line segment

Definition	Example	You Say and Write

Defining angles

An angle is formed by two line segments with a common endpoint.
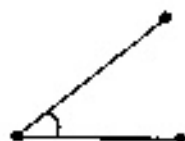
An angle can also be formed when two sides of a figure meet.

side

side
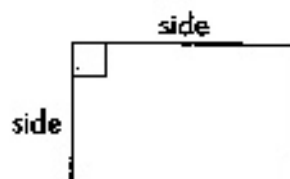
Making a right angle

Fold a piece of paper like this to get a right-angled corner.
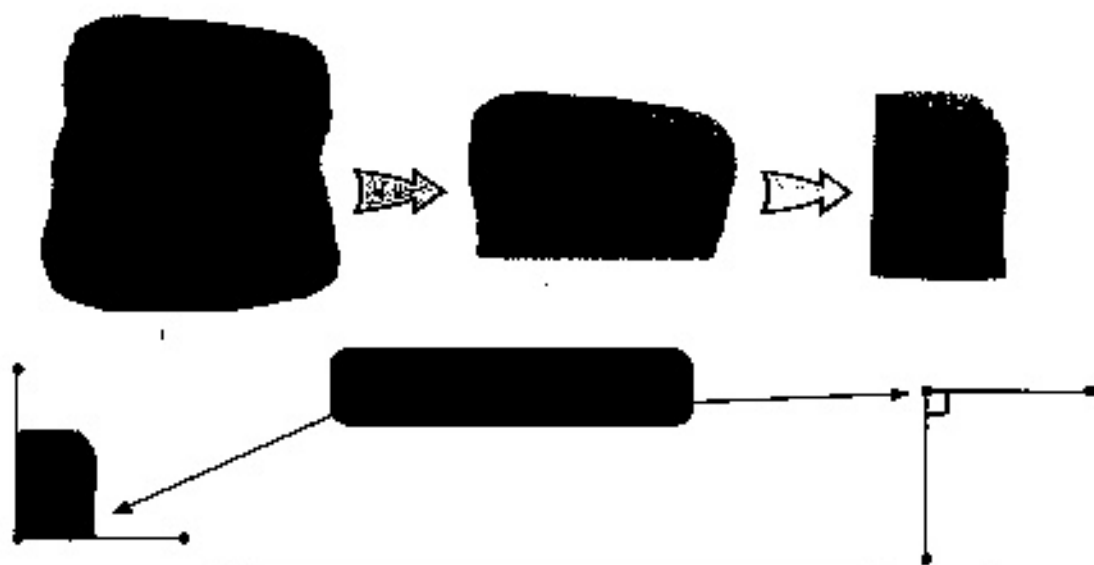
Comparing angles with a right angle

Compare an angle with a right angle.

Angle *E* is the same as a right angle.

Angle *F* is less than a right angle.

Use the folded paper to check if the angles are less than or greater than a right angle.

Angle *G* is greater than a right angle.

✔ Quick Check

Complete with point, line, or line segment.

1 A _____ is an exact location in space.

2 A _____ is a part of a line with two endpoints.

3 A _____ is a straight path continuing without end in two opposite directions.

Decide whether each figure forms an angle. Explain your answer.

4

5

Name the angle.

6
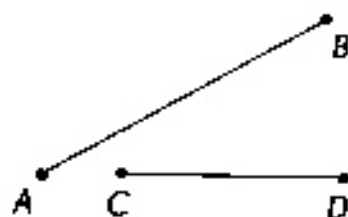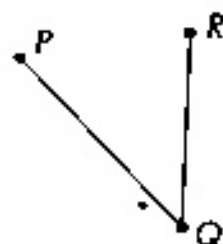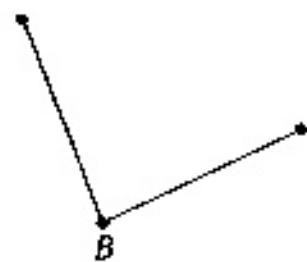
Angle _____

Copy the shapes. Mark an angle in each shape.

7 Rectangle

8 Pentagon
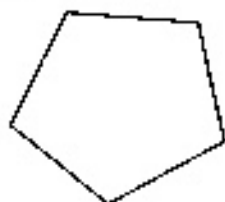
Decide whether the line segments in each angle form a right angle. Use a piece of folded paper to help you. Explain your answer.

9

10
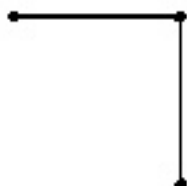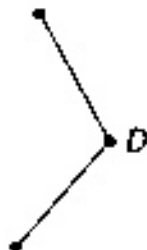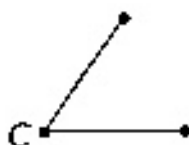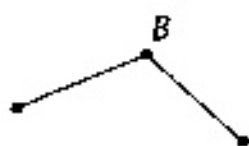
11
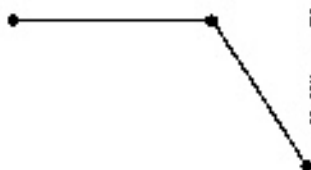
Look at the angles. Then answer the questions. Use a piece of folded paper to help you.

A

B

C

D

E

F
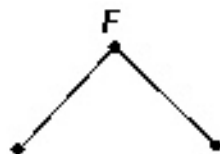
12 Which angles are right angles?

13 Which angles measure less than a right angle?

14 Which angles measure greater than a right angle?

Understanding and Measuring Angles

Lesson Objectives

Estimate and measure angles with a protractor.
Estimate whether the measure of an angle is
less than or greater than a right angle (90°).

Use letters to name rays and angles.

A ray is part of a line that continues without
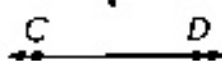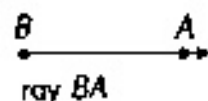end in one direction. It has one endpoint.
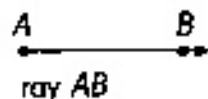You can use two letters to name a ray.
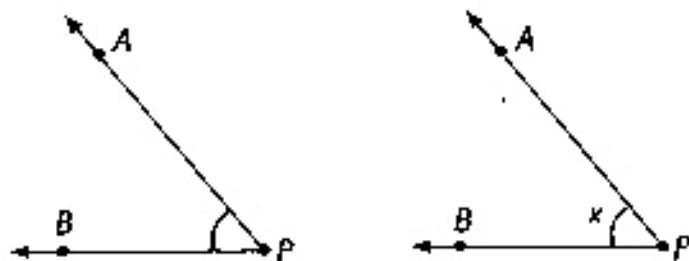The first letter is always the endpoint.

A ———————— B

ray AB

You can write ray AB as $\overrightarrow{AB}$, and ray BA as $\overrightarrow{BA}$.

B ———————— A

ray BA

In the same way, you can write:

a   line CD or DC as $\overleftrightarrow{CD}$ or $\overleftrightarrow{DC}$.

C ———————— D

b   line segment EF or FE as $\overline{EF}$ or $\overline{FE}$.

E ———————— F

$\overrightarrow{PA}$ and $\overrightarrow{PB}$ are rays meeting at point P.

In naming angles using
three letters, the vertex is
always the middle letter.

The point P is called the **vertex**.
Name the angle at vertex P ∠APB or ∠BPA.
If you label the angle at vertex P as x,
you can also name it ∠x.

Guided Practice

Name the angles.

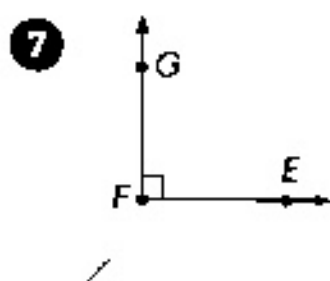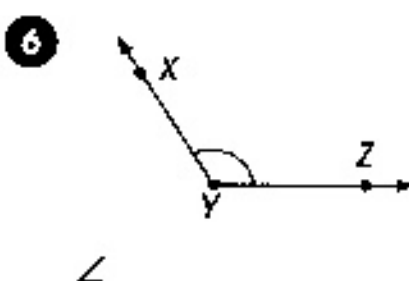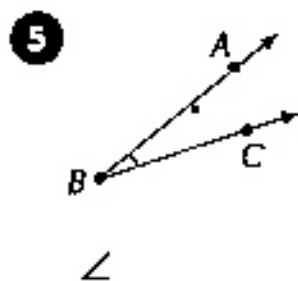An angle is also formed by two sides of a shape meeting at a point.

1 Angle at P: $\angle$ _____

2 Angle at Q: $\angle$ _____

3 Angle at R: $\angle$ _____

4 Angle at S: $\angle$ _____

Name the angles.

5

$\angle$ _____

6

$\angle$ _____

7

$\angle$ _____

Name the angles labeled at the vertices A, B, C, and D in another way.
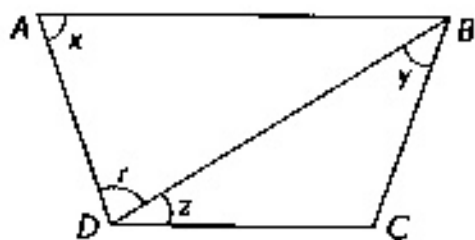
8 $\angle x$: $\angle$ _____

9 $\angle z$: $\angle$ _____

10 $\angle y$: $\angle$ _____

11 $\angle r$: $\angle$ _____

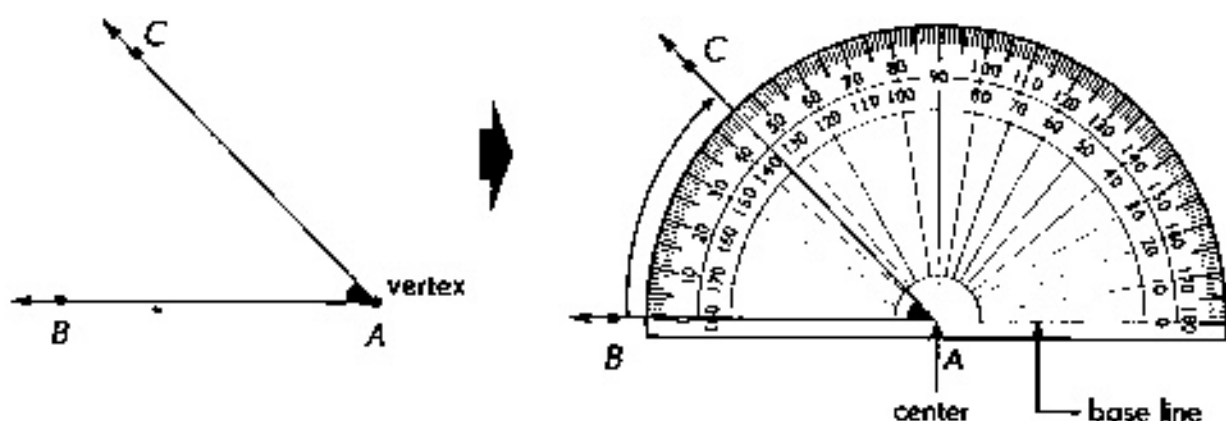**Learn** ## Use a protractor to measure an angle in degrees.

An angle measure is a fraction of a full turn. An angle is measured in degrees. For example, a right angle has a measure of 90 degrees. You can write this as 90°.

You can use a protractor to measure an angle.

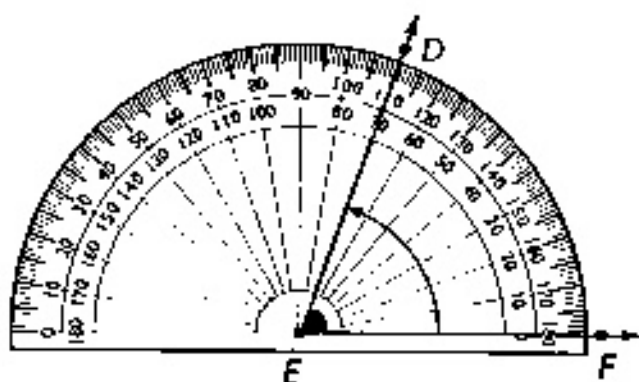**Step 1** Place the base line of the protractor on $\overrightarrow{AB}$.

Step 2 Place the center of the base line of the protractor at the vertex of the angle.

Step 3 Read the **outer scale**. $\overrightarrow{AC}$ passes through the 45° mark. So, the measure of the angle is 45°.

Since $\overrightarrow{AB}$ passes through the zero mark of the outer scale, read the measure on the outer scale.

Measure ∠DEF.

The measure of ∠DEF is less than that of a right angle. It is 70 degrees.

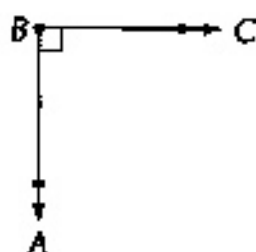Measure of ∠DEF =   °

Since $\overrightarrow{EF}$ passes through the zero mark of the **inner scale**, read the measure on the inner scale.
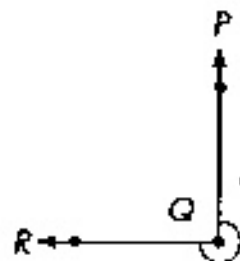
Guided Practice

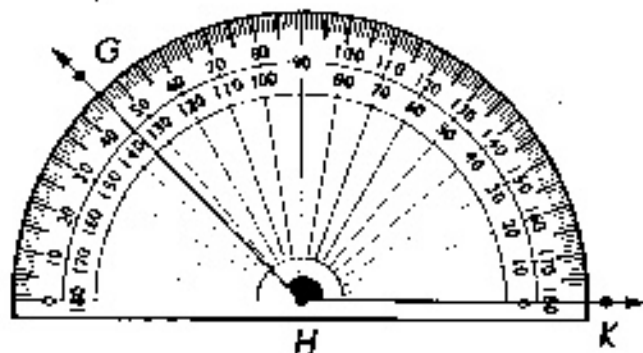## Complete.

12

The measure of ∠ABC
is   of a turn.

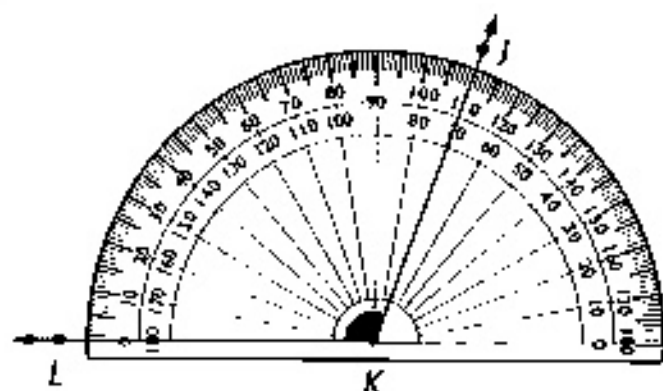**13**

The measure of ∠PQR
is   of a turn.

14 Measure ∠GHK.

Is the measure of ∠GHK less than or greater than 90°?

The measure of ∠GHK is   degrees.

Measure of ∠GHK =   °

Explain when to use the inner scale of the protractor.

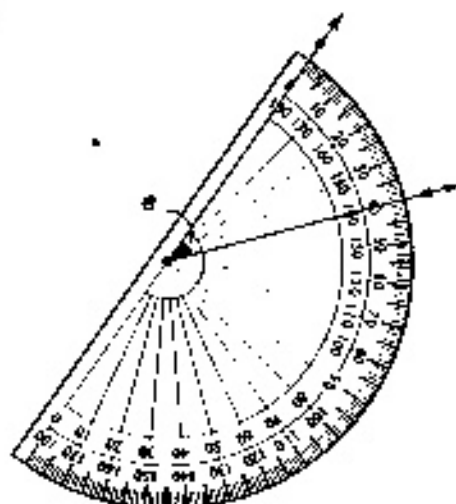**15** Measure ∠JKL.

Is the measure of ∠JKL less than or greater than 90°?

The measure of ∠JKL is _____ degrees.

Measure of ∠JKL = _____ °

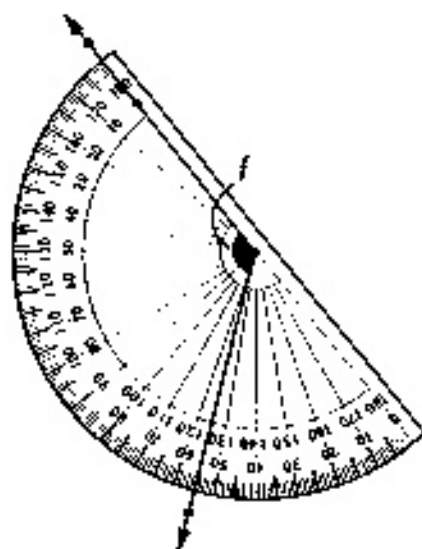Did you read the inner or outer scale? Explain your answer.

Find the measure of each angle.

16

Measure of ∠e = _____ °
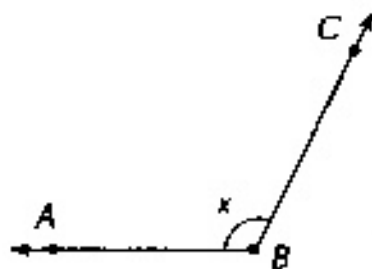
17

Measure of ∠f = _____ °

acute angle

obtuse angle

So, ∠e is an _____ angle, and ∠f is an _____ angle.

Math Journal

The steps for measuring these angles are not in order.
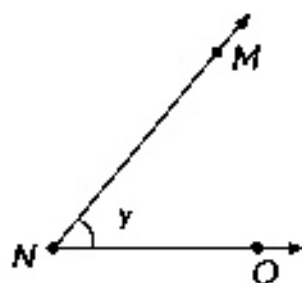**Arrange the steps in order by using 1, 2, or 3 in each box.**

① Obtuse angle

Step [ ]   Place the center of the base line of the protractor at vertex *B* of the angle.

Step [ ]   Place the base line of the protractor on ray *BA*.

Step [ ]   Read the outer scale at the point where ray *BC* crosses it.
The reading is 116°.
So, the angle measure is 116°.

② Acute angle

Step [ ]   Read the inner scale at the point where ray *NM* crosses it.
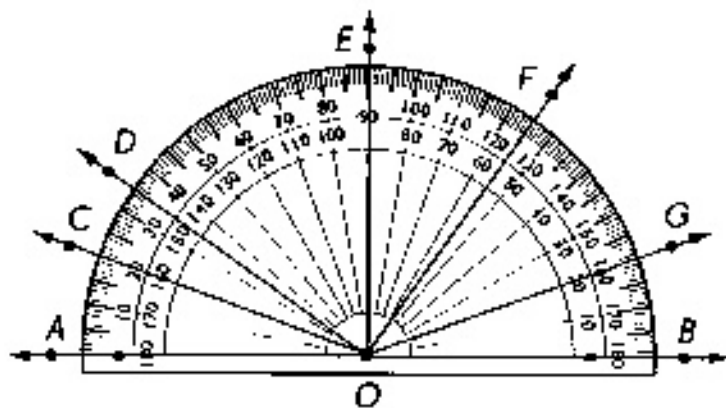The reading is 50°.
So, the angle measure is 50°.

Step [ ]   Place the base line of the protractor on ray *NO*.

Step [ ]   Place the center of the base line of the protractor at vertex *N* of the angle.

③ Compare the measures of the two angles in Exercises 1 and 2.
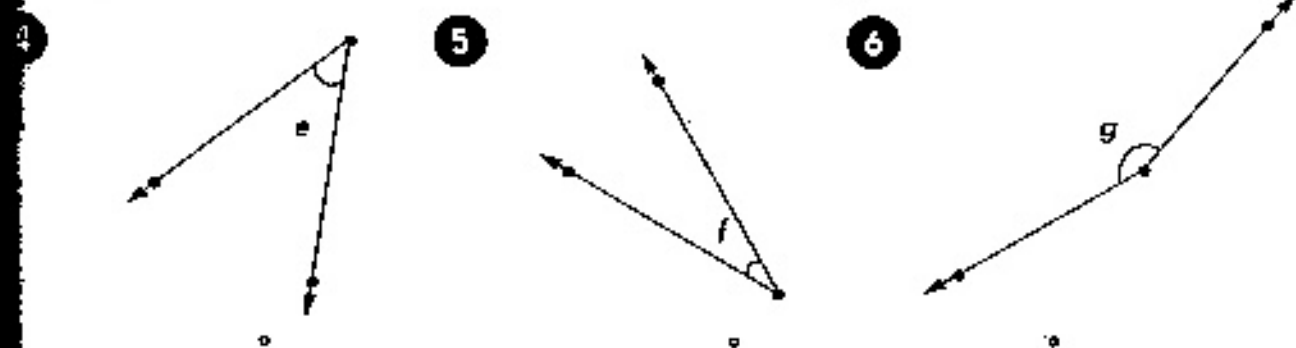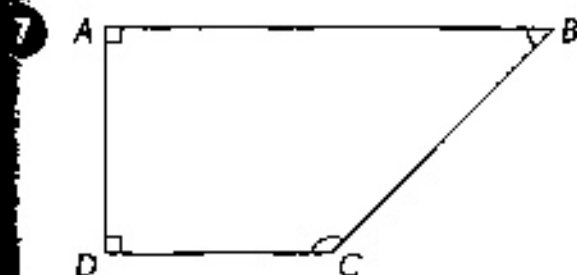Use < and > in your answers.

Name and measure the angles.

1) Name two angles that are right angles.

2) Name four angles that are acute angles.
What are the measures of these angles?

3) Name four angles that are obtuse angles.
What are the measures of these angles?

Use a protractor to find the measure of each angle.

4)

5

6

Use a protractor to measure each marked angle.

7)

Lesson 9.1   Understanding and Measuring Angles   **93**

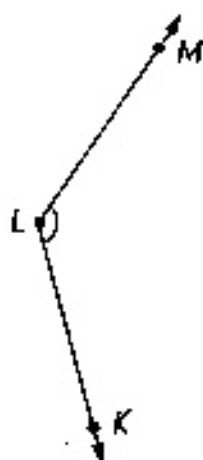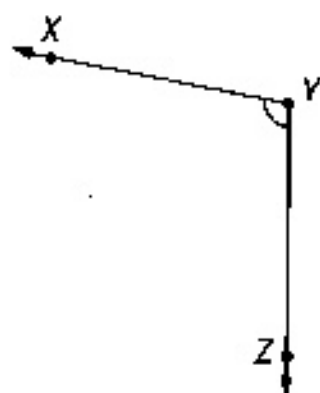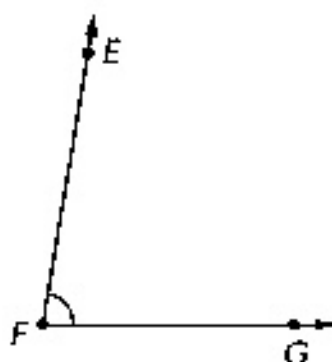## Hands-On Activity

Material:
• protractor

Estimate the measure of each angle by comparing it to a right
angle (90°). Then measure each one with a protractor.
Decide if each angle is an acute angle, an obtuse angle, or a right angle.

Record your answers in a table like this.

Angle	Estimated Measure	Actual Measure	Type of Angle
∠ABC	80°	90°	Right Angle