Name _____ Date _____

LESSON 1.4

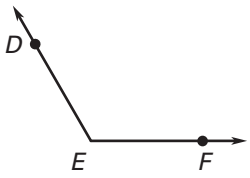
LESSON 1.4

Practice A

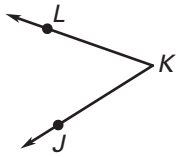
For use with the lesson "Measure and Classify Angles"

Write three names for the angle shown. Then name the vertex and sides of the angle.

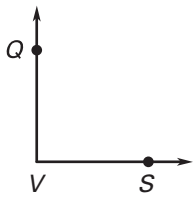
1.



2.



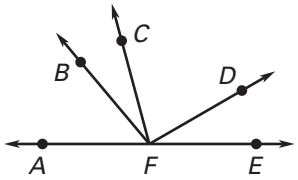
3.



Classify the angle with the given measure as *acute, obtuse, right,* or *straight*.

4. $m\angle A = 115°$ **5.** $m\angle A = 85°$ **6.** $m\angle A = 90°$ **7.** $m\angle A = 170°$

Use a protractor to find the measure of the given angle. Then classify the angle as *acute, obtuse, right,* or *straight*.



8. $\angle DFE$ **9.** $\angle AFB$

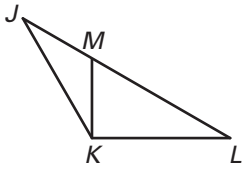
10. $\angle CFE$ **11.** $\angle AFE$

Give another name for the angle in the diagram. Tell whether the angle appears to be *acute, obtuse, right,* or *straight*.

12. $\angle LKJ$ **13.** $\angle JLK$

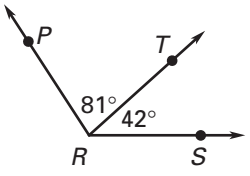
14. $\angle KJL$ **15.** $\angle MKL$

16. $\angle JML$ **17.** $\angle KMJ$

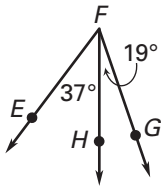


Find the indicated angle measure.

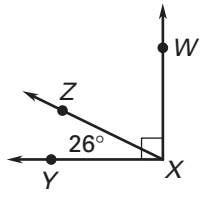
18. $m\angle PRS =$?



19. $m\angle EFG =$?

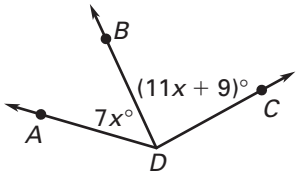


20. $m\angle WXZ =$?

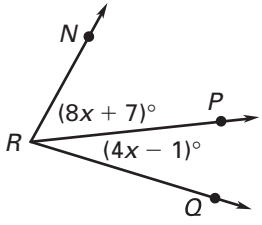


Use the given information to find the indicated angle measure.

21. Given $m\angle ADC = 135°$, find $m\angle BDC$.



22. Given $m\angle NRQ = 78°$, find $m\angle PRQ$.



Name _____ Date _____

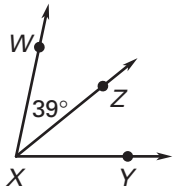
LESSON 1.4

Practice A *continued*

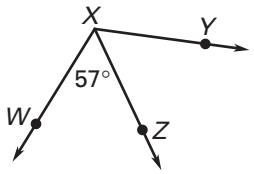
For use with the lesson "Measure and Classify Angles"

Given that $\overrightarrow{XZ}$ bisects $\angle WXY$, find the two angle measures not given in the diagram.

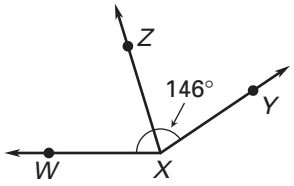
23.



24.

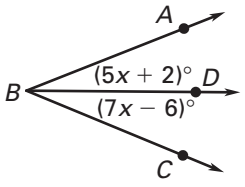


25.

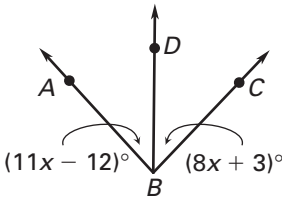


In each diagram, $\overrightarrow{BD}$ bisects $\angle ABC$. Find $m\angle ABC$.

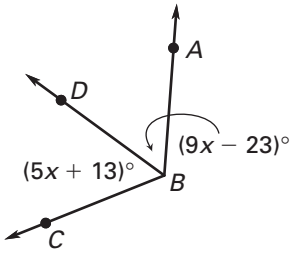
26.



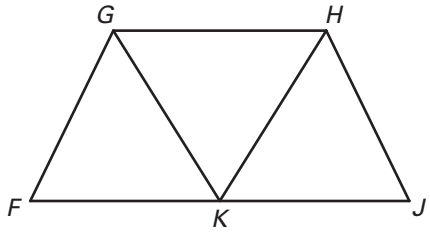
27.



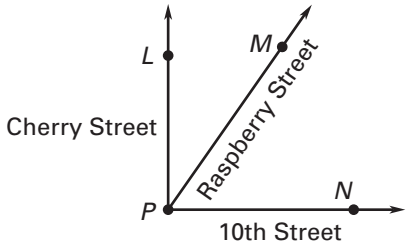
28.



29. Bridge In the bridge shown at the right, the measure of $\angle FGH$ is 116° and $\overline{GK}$ bisects $\angle FGH$. What is the measure of $\angle FGK$?

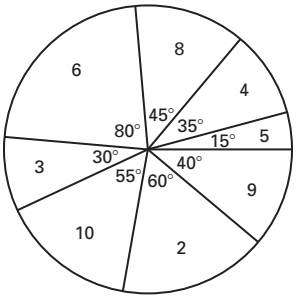


30. Streets The diagram shows the intersection of three streets. The measure of $\angle MPN$ is 55° and $\angle LPN$ is a right angle. What is the measure of $\angle LPM$?



Lesson 1.4 Measure and Classify Angles, continued

2. Angle measures are shown for your reference. Note that the angle measure of piece 1 is 510° and the angle measure of piece 7 is 70°.



3. *Sample answer:* If the largest piece (piece 1) is in the pan, eight pieces will not fit. If the two next-to-largest pieces (piece 6 and piece 7) are both in the pan, eight pieces will not fit, so one of them must be left out along with piece 1. If pieces 6 and 1 are left out, the pieces do not quite fill a circle, but leaving out pieces 7 and 1 works.

Investigating Geometry Activity

1. All of the angle measures of the examples of acute angles are greater than 0° and less than 90°. The measures of the angles given as non-examples are all greater than or equal to 90°. An acute angle is an angle whose measure is greater than 0° and less than 90°. **2.** All of the angle measures of the examples of the right angles are equal to 90°. The measures of the angles given as non-examples are either less than or greater than or 90°. A right angle is an angle whose measure is exactly 90°.

3. All of the angle measures of the examples of the obtuse angles are greater than 90° and less than 180°. The measures of the angles given as non-examples are either less than or equal to 90° or equal to 180°. An obtuse angle is an angle whose measure is greater than 90° and less than 180°. **4.** All of the angle measures of the examples of the straight angles are equal to 180°. The measures of the angles given as non-examples are all less than 180°. A straight angle is an angle whose measure is exactly 180°.

Practice Level A

1. $\angle DEF$, $\angle FED$, and $\angle E$; vertex: E; sides: $\overrightarrow{ED}$ and $\overrightarrow{EF}$ **2.** $\angle JKL$, $\angle LKJ$, and $\angle K$; vertex: K; sides: $\overrightarrow{KJ}$ and $\overrightarrow{KL}$

3. $\angle QVS$, $\angle SVQ$, and $\angle V$; vertex: V; sides: $\overrightarrow{VQ}$ and $\overrightarrow{VS}$ **4.** obtuse **5.** acute

6. right **7.** obtuse **8.** 30°; acute **9.** 50°; acute

10. 105°; obtuse **11.** 180°; straight

12. $\angle JKL$; obtuse **13.** $\angle KLJ$; acute

14. $\angle LJK$, $\angle KJM$, $\angle MJK$, or $\angle J$; acute

15. $\angle LKM$; right **16.** $\angle LMJ$; straight

17. $\angle JMK$; obtuse **18.** 123° **19.** 56° **20.** 64°

21. 86° **22.** 23°

23. $m\angle ZXY = 39°$, $m\angle WXY = 78°$

24. $m\angle YXZ = 57°$, $m\angle YXW = 114°$

25. $m\angle WXZ = 73°$, $m\angle ZXY = 73°$ **26.** 44°

27. 86° **28.** 116° **29.** 58° **30.** 35°

Practice Level B

1. 60°; $\angle ABC$, $\angle CBA$, or $\angle B$; B, $\overrightarrow{BA}$, $\overrightarrow{BC}$

2. 38°; $\angle MOP$, $\angle POM$, or $\angle O$; O, $\overrightarrow{OM}$, $\overrightarrow{OP}$

3. 112°; $\angle EFG$, $\angle GFE$, or $\angle F$; F, $\overrightarrow{FE}$, $\overrightarrow{FG}$

4. *Sample answer:* $\angle K$; right

5. *Sample answer:* $\angle KLM$; straight

6. *Sample answer:* $\angle MQP$; acute

7. *Sample answer:* $\angle JMK$; acute

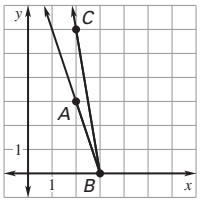
8. *Sample answer:* $\angle P$; acute

9. *Sample answer:* $\angle KLP$; obtuse **10.** 25°

11. 85° **12.** 20° **13.** 160° **14.** 15° **15.** 75°

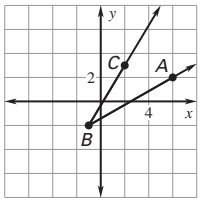
16. 48° **17.** 98° **18.** 112°

19.



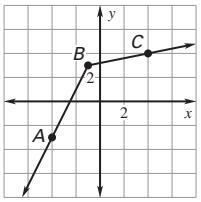
acute; *Sample answer:* (2, 5)

20.



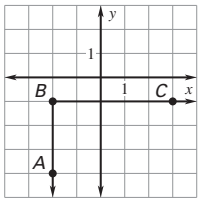
acute; *Sample answer:* (2, 1)

21.



obtuse; *Sample answer:* (2, −8)

22.



right; *Sample answer:* (0, −3)

23. $22 < x < 52$ **24.** 15° **25. a.** Acute angles: $\angle MNQ$, $\angle QNR$, $\angle RNS$, and $\angle SNP$; Obtuse angles: $\angle QNP$ and $\angle SNM$; Right angles: $\angle MNR$ and $\angle PNR$ **b.** $\angle MNQ \cong \angle SNP$, $\angle QNR \cong \angle RNS$, $\angle MNR \cong \angle PNR$ and $\angle QNP \cong \angle SNM$ **c.** $m\angle MNR = 90°$, $m\angle RNS = 30°$, $m\angle QNS = 60°$, and $m\angle QNP = 120°$