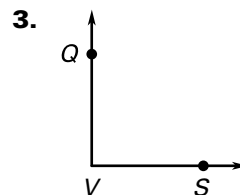
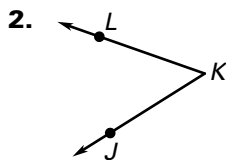
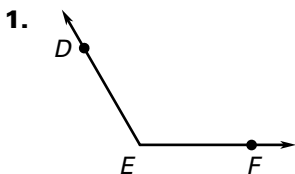


LESSON 1.4 Practice A
For use with pages 24–32

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

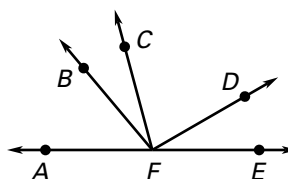


Classify the angle with the given measure as *acute*, *obtuse*, *right*, or *straight*.

4. $m\angle A = 115^\circ$ 5. $m\angle A = 85^\circ$ 6. $m\angle A = 90^\circ$ 7. $m\angle A = 170^\circ$

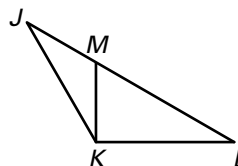
Use a protractor to find the measure of the given angle. Then classify the angle as *acute*, *obtuse*, *right*, or *straight*.

8. $\angle DFE$ 9. $\angle AFB$
10. $\angle CFE$ 11. $\angle AFE$



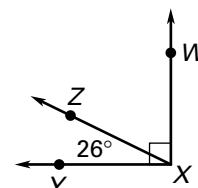
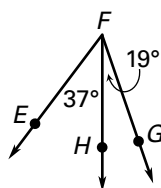
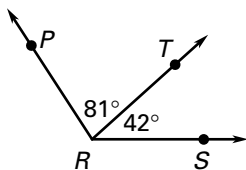
Give another name for the angle in the diagram. Tell whether the angle appears to be *acute*, *obtuse*, *right*, or *straight*.

12. $\angle LKJ$ 13. $\angle JLK$
14. $\angle KJL$ 15. $\angle MKL$
16. $\angle JML$ 17. $\angle KMJ$



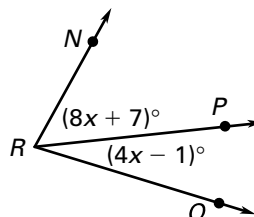
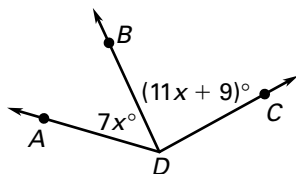
Find the indicated angle measure.

18. $m\angle PRS = \underline{\quad?}$ 19. $m\angle EFG = \underline{\quad?}$ 20. $m\angle WXZ = \underline{\quad?}$



Use the given information to find the indicated angle measure.

21. Given $m\angle ADC = 135^\circ$, find $m\angle BDC$. 22. Given $m\angle NRQ = 78^\circ$, find $m\angle PRQ$.



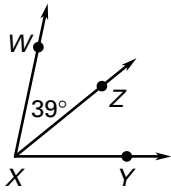
LESSON
1.4

Practice A *continued*

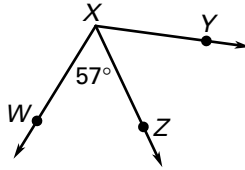
For use with pages 24–32

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

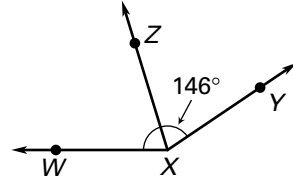
23.



24.

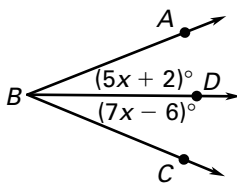


25.

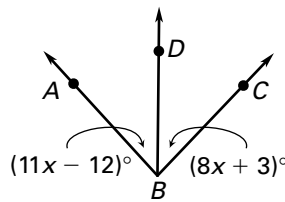


In each diagram, \overrightarrow{BD} bisects $\angle ABC$. Find $m\angle ABC$.

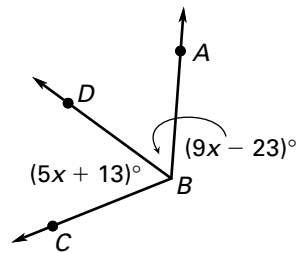
26.



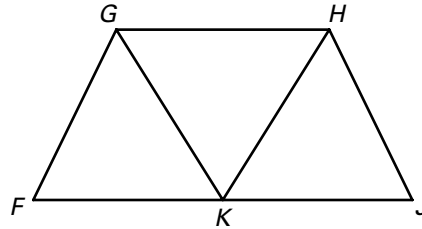
27.



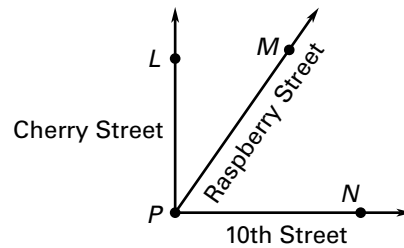
28.



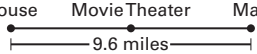
29. **Bridge** In the bridge shown at the right, the measure of $\angle FGH$ is 116° and \overline{GK} bisects $\angle FGH$. What is the measure of $\angle FGK$?



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 1.3, continued

26. a.  4.8 mi b. 1.5 h

27. Dunkirk to Clearfield = 10.2 mi; Dunkirk to Lake City = 8.6 mi; Dunkirk to Allentown = 4.1 mi; Clearfield to Lake City = 7.1 mi; Clearfield to Allentown = 9.2 mi; Lake City to Allentown = 5 mi 28. Dunkirk and Allentown; Dunkirk and Clearfield 29. Choice C; the total distance of the path is closest to 26 mi.

Practice Level C


1. 23 cm 2. $19\frac{1}{4}$ in. 3. $29\frac{1}{6}$ ft 4. 8.45 m
 5. 7 6. 142 7. $24\frac{2}{3}$ 8. (8, 1) 9. (2.5, 4)
 10. (-5.5, -1) 11. (-11.5, -2.5)
 12. (0, -10) 13. (-11, 23) 14. (22, -2)
 15. (-18, -3) 16. 6.3 17. 7.8 18. 8.1
 19. 6.7 20. 16; -6 21. 45; -7.5
 22. $AB \approx 8.6$, $CD \approx 8.5$; not congruent
 23. $RS = 10$, $TU = 10$; congruent
 24. $KL \approx 12.0$, $MN \approx 12.0$; congruent
 25. $OP \approx 7.8$, $QR \approx 8.1$; not congruent
 26. 3737 units 27. 5458 units
 28. 5296 units 29. 3996 units
 30. Dunkirk to Clearfield: 10.8 mi; Dunkirk to Lake City: 14.4 mi; Dunkirk to Allentown: 12.6 mi; Clearfield to Lake City: 4.5 mi; Clearfield to Allentown: 10 mi; Lake City to Allentown: 8.9 mi 31. Clearfield and Lake City; Dunkirk and Lake City 32. D; The total distance of this route (35.9 mi) is closest to 36 miles.

Review for Mastery

1. 20 cm 2. 50 mm 3. 74 in. 4. 15 cm
 5. (2, 4) 6. $(4, \frac{3}{2})$ 7. (8, 3) 8. (3, 2) 9. (1, 1)
 10. $(\frac{5}{2}, -\frac{5}{2})$ 11. 7.2 12. 6.4

Problem Solving Workshop:

Mixed Problem Solving

1. a. 14 mi b. about 11.4 mi c. about 2.6 mi
 2. a.  b. 1125 ft 3. $Y(2, -1)$; Use the points S and T to find point W . Then use the midpoint formula with point W and point X to find the coordinates of point Y . 4. 2 5. EDC , DCF , CFE , FED ; The intersection of planes ABC and BGF is \overline{BC} .

6. a. 82 mi b. about 1.5 h c. Yes; The total time of the trip is $1.5 + 3(1.75) = 6.75$ hours which is less than 8 hours.

Challenge Practice

1. $(\frac{3x_1 + x_2}{4}, \frac{3y_1 + y_2}{4})$, $(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$,
 $(\frac{x_1 + 3x_2}{4}, \frac{y_1 + 3y_2}{4})$ 2. a. $(\frac{7}{4}, -\frac{7}{4})$, $(\frac{5}{2}, -\frac{3}{2})$,
 $(\frac{13}{4}, -\frac{5}{4})$ b. $(-\frac{3}{2}, -\frac{9}{4})$, $(-1, -\frac{3}{2})$, $(-\frac{1}{2}, -\frac{3}{4})$

3. *Sample answer:* To determine whether three points A , B , and C in a coordinate plane are collinear, find AB , BC , and AC . By the Segment Addition Postulate, if $AB + BC = AC$, then B is between A and C , and when one point is between two other points, then the three points are collinear.

4. Collinear 5. Not collinear 6. Not collinear
 7. Collinear 8. $AB = \sqrt{29}$, $M = (5, 3, \frac{13}{2})$
 9. $AB = \sqrt{13}$, $M = (3, 1, \frac{15}{2})$
 10. $AB = \sqrt{19}$, $M = (-\frac{9}{2}, \frac{9}{2}, \frac{13}{2})$
 11. $AB = 17$, $M = (\frac{5}{2}, 2, 6)$
 12. a. (15, 22.5), (45, 22.5) b. 30 units

Lesson 1.4

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. $m\angle ZXY = 39^\circ$, $m\angle WXY = 78^\circ$
 24. $m\angle YXZ = 57^\circ$, $m\angle YXW = 114^\circ$
 25. $m\angle WXZ = 73^\circ$, $m\angle ZXY = 73^\circ$ 26. 44°
 27. 86° 28. 116° 29. 58° 30. 35°