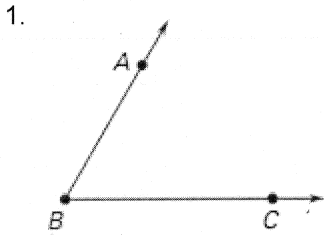
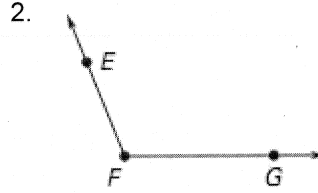


Name Key

Give three different names for the angles below. Then name the vertex and the sides of the angle.

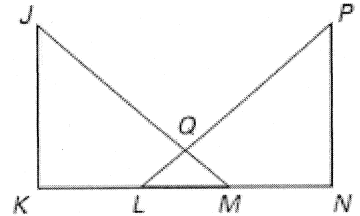


Names (3):
 $\angle ABC$; $\angle CBA$;
 $\angle B$
 Vertex: Point B
 Sides: \overrightarrow{BA} , \overrightarrow{BC}



Names (3):
 $\angle EFG$; $\angle GFE$;
 $\angle F$
 Vertex: Point F
 Sides: \overrightarrow{FE} , \overrightarrow{FG}

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



3. $\angle KMN$ } 4. $\angle JML$ } 5. $\angle PLK$
 $\angle NMK$, straight } $\angle KMJ$, acute } $\angle KLP$, obtuse

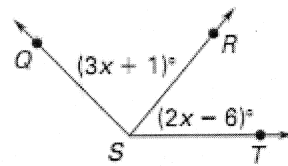
Use the given information to find the indicated angle measure.

6. Given $m\angle QST = 135^\circ$, find $m\angle QSR$. $3x + 1 + 2x - 6 = 135$

$$5x - 5 = 135$$

$$5x = 140$$

$$x = 28$$

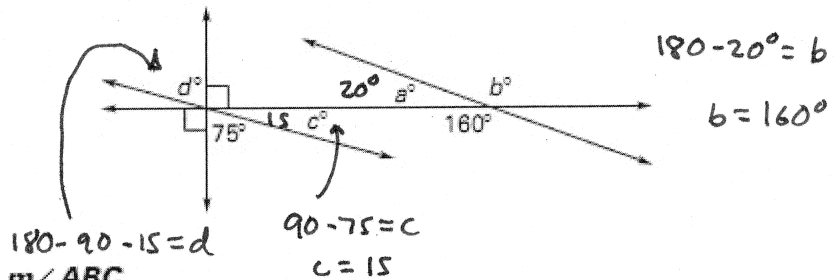


$$m\angle QSR = 85^\circ$$

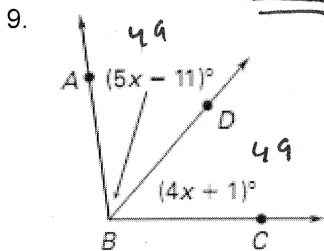
Find the indicated angle measure.

7. b° 160°

8. d° 75°



In the diagram, \overline{BD} bisects $\angle ABC$. Find $m\angle ABC$.



$$5x - 11 = 4x + 1$$

$$x = 12$$

$$m\angle ABC = 98^\circ$$

$\angle 1$ and $\angle 2$ are complementary angles and $\angle 2$ and $\angle 3$ are supplementary angles. Given the measure of $\angle 1$, find $m\angle 2$ and $m\angle 3$.

10. $m\angle 1 = 80^\circ$ $80 + m\angle 2 = 90$
 $m\angle 2 = 10^\circ$
 $10 + m\angle 3 = 180$

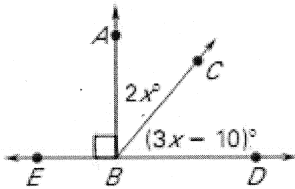
11. $m\angle 1 = 72^\circ$ $72 + m\angle 2 = 90$
 $m\angle 2 = 18^\circ$
 $18 + m\angle 3 = 180$

$$m\angle 2 = 10^\circ \quad m\angle 3 = 170^\circ$$

$$m\angle 2 = 18^\circ \quad m\angle 3 = 162^\circ$$

Find $m\angle ABC$ and $m\angle CBD$. $2x + 3x - 10 = 90$

12.



$$5x - 10 = 90$$

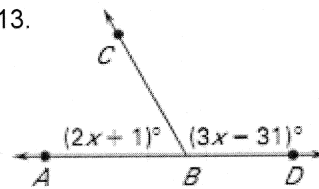
$$5x = 100$$

$$x = 20$$

$$m\angle ABC = 40^\circ \quad m\angle CBD = 50^\circ$$

$$2x + 1 + 3x - 31 = 180$$

13.



$$5x - 30 = 180$$

$$5x = 210$$

$$x = 42$$

$$m\angle ABC = 85^\circ \quad m\angle CBD = 95^\circ$$

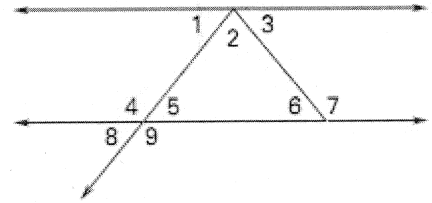
In Exercises 8-12, use the diagram. Tell whether the angles are vertical angles, a linear pair, or neither.

14. $\angle 2$ and $\angle 3$

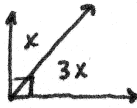
15. $\angle 5$ and $\angle 8$

Neither

vertical \angle 's



16. The measure of one angle is three times the measure of its complement. Find the measure of each angle.



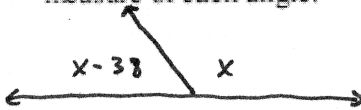
$$x + 3x = 90$$

$$4x = 90$$

$$x = 22.5$$

$$m\angle 1 = 22.5^\circ \quad m\angle 2 = 67.5^\circ$$

17. The measure of one angle is 38° less than the measure of its supplement. Find the measure of each angle.



$$x + x - 38 = 180$$

$$2x - 38 = 180$$

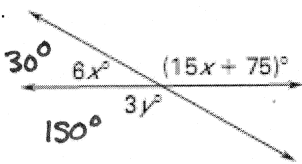
$$2x = 218$$

$$x = 109$$

$$m\angle 1 = 71^\circ \quad m\angle 2 = 109^\circ$$

Find the values of x and y .

18.



$$6x + 15x + 75 = 180$$

$$21x + 75 = 180$$

$$21x = 105$$

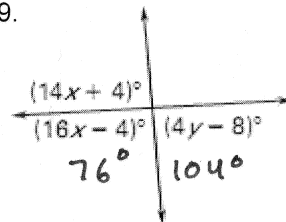
$$x = 5$$

$$3y = 150$$

$$y = 50$$

$$x = 5 \quad y = 50$$

19.



$$14x + 4 + 16x - 4 = 180$$

$$30x = 180$$

$$x = 6$$

$$4y - 8 = 104$$

$$4y = 112$$

$$y = 28$$

$$x = 6 \quad y = 28$$

$\angle A$ and $\angle B$ are complementary angles. Find $m\angle A$ and $m\angle B$.

21. $m\angle A = x^\circ$

$$x + 2x - 75 = 90$$

$$3x - 75 = 90$$

$$3x = 165$$

$$x = 55$$

$$m\angle B = (2x - 75)^\circ$$

22. $m\angle A = (4x - 18)^\circ$

$$4x - 18 + 6x - 18 = 90$$

$$10x - 36 = 90$$

$$10x = 126$$

$$x = 12.6$$

$$m\angle B = (6x - 18)^\circ$$

$$m\angle A = 55^\circ \quad m\angle B = 35^\circ$$

$$m\angle A = 32.4^\circ \quad m\angle B = 57.6^\circ$$

$\angle A$ and $\angle B$ are supplementary angles. Find $m\angle A$ and $m\angle B$.

23. $m\angle A = (x + 50)^\circ$

$$x + 50 + x + 100 = 180$$

$$2x + 150 = 180$$

$$2x = 30$$

$$x = 15$$

$$m\angle B = (x + 100)^\circ$$

24. $m\angle A = (2x + 3)^\circ$

$$2x + 3 + 3x - 223 = 180$$

$$5x - 220 = 180$$

$$5x = 400$$

$$x = 80$$

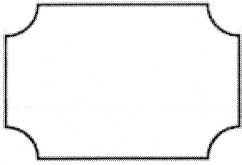
$$m\angle B = (3x - 223)^\circ$$

$$m\angle A = 65^\circ \quad m\angle B = 115^\circ$$

$$m\angle A = 163^\circ \quad m\angle B = 17^\circ$$

Tell whether the figure is a polygon. If it is not, explain why. If it is a polygon, tell whether it is *convex* or *concave*

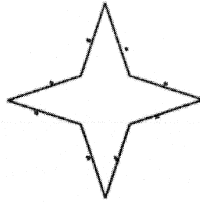
25.



Polygon? NO

Not all sides are segments (curved)

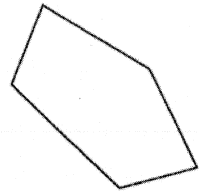
26.



Polygon? yes

Concave

27.

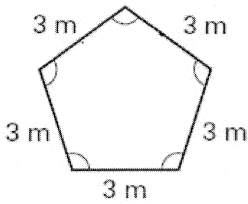


Polygon? yes

Convex

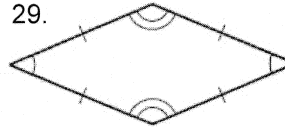
Classify the polygon by the number of sides. Tell whether the polygon is *equilateral*, *equiangular*, or *regular*. Explain your reasoning

28.



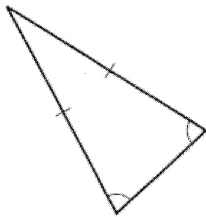
Classify: Pentagon
 Polygon is Regular
Both equiangular and equilateral

29.



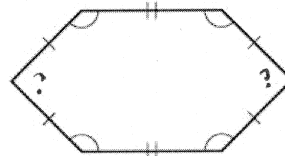
Classify: Quadrilateral
 Polygon is Equilateral
All sides are \cong , but not all \angle 's

30.



Classify: Triangle
 Polygon is _____
Not equiangular or equilateral

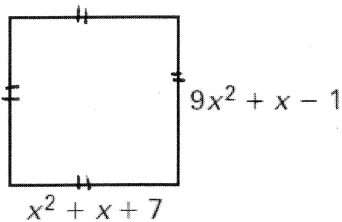
31.



Classify: Hexagon
 Polygon is _____
Not equiangular or equilateral

Each figure is a regular polygon. Find the length of each side or the measure of each interior angle (depending on the given information).

32.



$$9x^2 + x - 1 = x^2 + x + 7$$

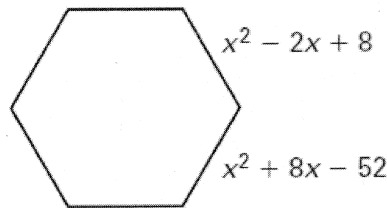
$$8x^2 = 8$$

$$x^2 = 1$$

$$x = \pm 1$$

side length = 9 units * or 7 units *

33.



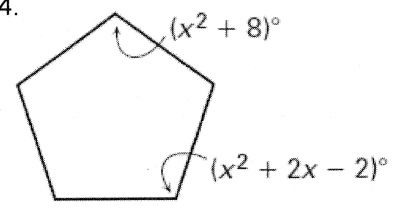
$$x^2 - 2x + 8 = x^2 + 8x - 52$$

$$60 = 10x$$

$$x = 6$$

side length = 32 units

34.



$$x^2 + 8 = x^2 + 2x - 2$$

$$10 = 2x$$

$$x = 5$$

angle measure = 33 degrees