

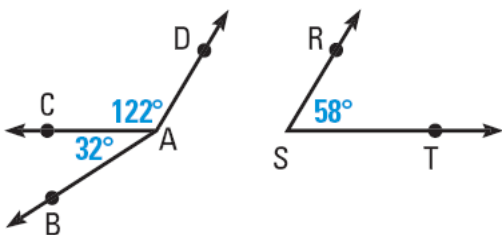
Geometry

ASSIGNMENT 1.9

- Two angles are _____ if their measures add up to 90° .
- Two angles are _____ if their measures add up to 180° .
- Two angles are _____ angles if their sides are formed by two intersecting lines, but they do not share a side in common. Vertical angles are _____ in measure.
- Two angles are a _____ if they share a side in common and their non-common sides form a straight angle. Angles that form a linear pair are supplementary or add up to _____.

Name a pair of complementary angles and a pair of supplementary angles. Answers may vary.

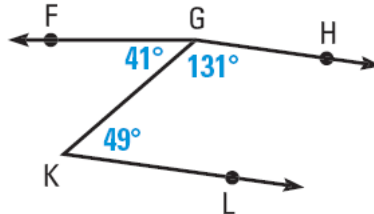
5.



Complementary Angles: _____

Supplementary Angles: _____

6.



Complementary Angles: _____

Supplementary Angles: _____

- $\angle 1$ and $\angle 2$ are complementary angles.
Given $m\angle 1 = 68^\circ$, find $m\angle 2$.

- $\angle A$ and $\angle B$ are supplementary angles.
Given $m\angle A = 123^\circ$, find $m\angle B$.

$\angle A$ and $\angle B$ are complementary and $\angle B$ and $\angle C$ are supplementary.

- If $m\angle A = 47^\circ$, then

$m\angle B = \underline{\hspace{2cm}}$ and $m\angle C = \underline{\hspace{2cm}}$.

- If $m\angle C = 91^\circ$, then

$m\angle B = \underline{\hspace{2cm}}$ and $m\angle A = \underline{\hspace{2cm}}$.

- $\angle C$ is a complement of $\angle D$. Find $m\angle C$.

$$m\angle C = (15x + 3)^\circ$$

$$m\angle D = (5x - 13)^\circ$$

- $\angle A$ is a supplement of $\angle B$. Find $m\angle B$.

$$m\angle A = (6x + 72)^\circ$$

$$m\angle B = (2x + 28)^\circ$$

Use the figure at the right to answer true or false for the following questions.

13. $\angle 1$ and $\angle 5$ are vertical angles.

14. $\angle 1$ and $\angle 3$ are vertical angles.

15. $\angle 2$ and $\angle 4$ are vertical angles.

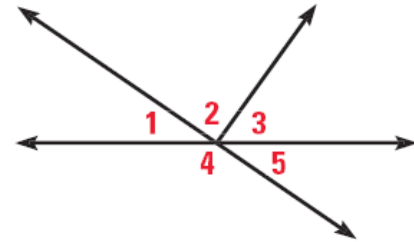
16. $\angle 2$ and $\angle 5$ are vertical angles.

17. $\angle 1$ and $\angle 4$ are a linear pair.

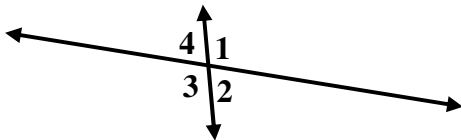
18. $\angle 4$ and $\angle 5$ are a linear pair.

19. $\angle 1$ and $\angle 3$ are a linear pair.

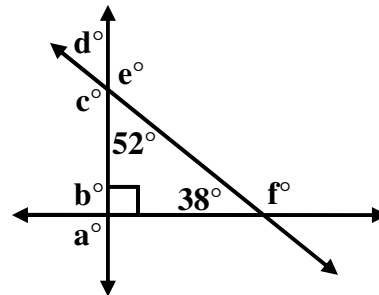
20. $\angle 2$ and $\angle 5$ are a linear pair.



21. Given $m\angle 1 = 112^\circ$, determine $m\angle 2$, $m\angle 3$, and $m\angle 4$.



22. Find the value of a , b , c , d , e , and f .



23. M is the midpoint \overline{AB} . Find AM .

$$AM = x + 15$$

$$MB = 4x - 45$$

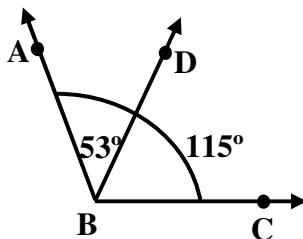
24. B is between point A and C . Find BC .

$$AB = 2x + 10$$

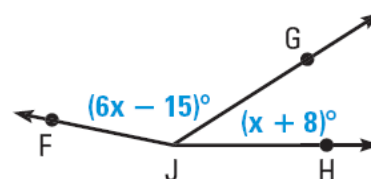
$$BC = x - 4$$

$$AC = 21$$

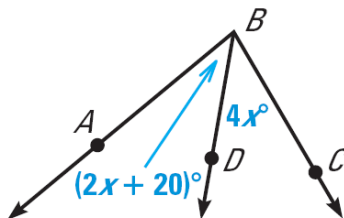
25. Find $m\angle DBC$.



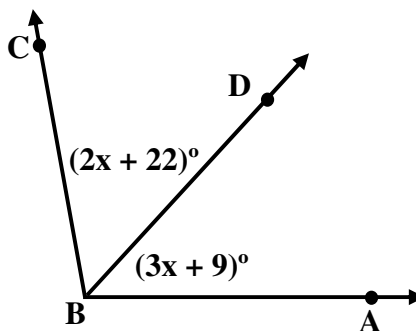
26. Given $m\angle FJH = 168^\circ$, find $m\angle FJG$.



27. \overline{BD} bisects $\angle ABC$. Find $m\angle DBC$.



28. \overline{BD} bisects $\angle ABC$. Find $m\angle ABC$.



Classify each angle.

29. $m\angle ABC = 76^\circ$

30. $m\angle 3 = 180^\circ$

31. $m\angle F = 90^\circ$

32. $m\angle XYZ = 134^\circ$

33. Find the midpoint of \overline{CD} given its endpoints.

$C(-8, -3)$ $D(5, -9)$

34. Given the midpoint $M(-4, 0)$ and an endpoint $F(-3, 2)$ of \overline{FG} , find the other endpoint.

35. Find the length of segment \overline{XY} given the coordinates of its endpoints.

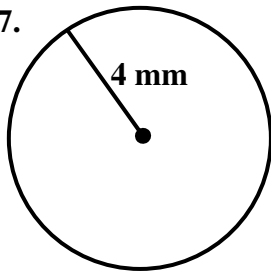
$X(-1, 5)$ $Y(4, -7)$

36. Find the distance between the endpoints of \overline{AB} .

$A(-9, 2)$ $B(-5, 0)$

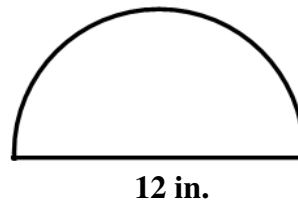
Find the circumference and area of the circle.
Leave answer in terms of π .

37.



Find the area of the figure.
Leave answer in terms of π .

38.



39. The area of a triangle is 42 m^2 and its base is 6 m. Find the height.

40. The circumference of a circle is $32\pi \text{ in.}$. Find its area.

41. The perimeter of a rectangle is 44 square inches and its height is 6 inches. What is the area of the rectangle?

42. A sewing club is making a quilt consisting of 16 squares with each side of the square 10 centimeters. If the quilt has four rows and four columns, what is the perimeter of the quilt?

Answer Key:

- 1) complementary 2) supplementary 3) vertical, equal 4) linear, 180°
 5) $\angle BAC$ and $\angle RST$, $\angle CAD$ and $\angle RST$ 6) $\angle FGK$ and $\angle LKG$, $\angle HGK$ and $\angle LKG$ 7) $m\angle 2 = 22^\circ$
 8) $m\angle B = 57^\circ$ 9) $m\angle B = 43^\circ$, $m\angle C = 137^\circ$ 10) $m\angle B = 89^\circ$, $m\angle A = 1^\circ$ 11) $m\angle C = 78^\circ$
 12) $m\angle B = 48^\circ$ 13) True 14) False 15) False 16) False 17) True 18) True
 19) False 20) False 21) $m\angle 2 = 68^\circ$, $m\angle 3 = 112^\circ$, $m\angle 4 = 68^\circ$
 22) $a = 90$, $b = 90$, $c = 128$, $d = 52$, $e = 128$, $f = 142$ 23) $AM = 35$ 24) $BC = 1$ 25) $m\angle DBC = 62^\circ$
 26) $m\angle FJG = 135^\circ$ 27) $m\angle DBC = 40^\circ$ 28) $m\angle ABC = 96^\circ$ 29) Acute 30) Straight 31) Right 32) Obtuse
 33) $M\left(-\frac{3}{2}, -6\right)$ 34) $G(-5, -2)$ 35) $XY = 13$ 36) $AB = 2\sqrt{5}$ 37) $C = 8\pi \text{ mm}$, $A = 16\pi \text{ mm}^2$
 38) $A = 18\pi \text{ in.}^2$ 39) $h = 14 \text{ m}$ 40) $A = 256\pi \text{ in.}^2$ 41) $A = 96 \text{ in.}^2$ 42) $P = 160 \text{ cm}$