Key
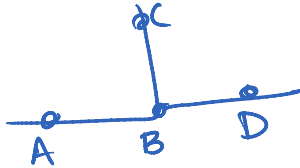
Vocabulary Apply the vocabulary from this lesson to answer each question.

1. An angle measures $x°$. What is the measure of its *complement?* What is the measure of its *supplement?* $180-x$ $90-x$

2. $\angle ABC$ and $\angle CBD$ are *adjacent angles.* Which side do the angles have in common?

Ray $\overrightarrow{BC}$

Find the measure of each of the following.

7. supplement of $\angle A$ 98.8   8. complement of $\angle A$ 8.8

9. supplement of $\angle B$ $185-6x$ 10. complement of $\angle B$ $95-6x$

11. **Multi-Step** An angle's measure is 6 degrees more than 3 times the measure of its complement. Find the measure of the angle.
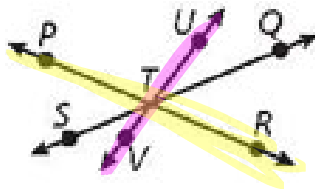
$(6x - 5)°$

$81.2°$
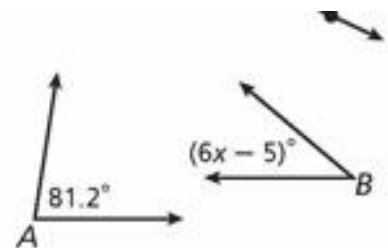
$180-(6x-5)$ $90-(6x-5)$
$180-6x+5$ $90-6x+5$

23. **Art** In the stained glass pattern, $\angle 1 \cong \angle 2$. $\angle 1$ and $\angle 3$ are complementary, and $\angle 2$ and $\angle 4$ are complementary. If $m\angle 1 = 22.3°$, find $m\angle 2$, $m\angle 3$, and $m\angle 4$.

67.7   67.7
22.3   22.3
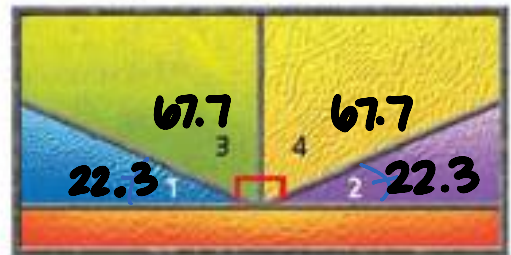
$\angle 1 = 22.3$
$\angle 3 = 67.7$
$\angle 4 = 67.7$
$\angle 2 = 22.3$

24. Name the pairs of vertical angles.

∠PTS and ∠QTR
∠PTQ and ∠STR

∠STV and ∠UTQ
∠STU and ∠VTQ

∠PTU and ∠VTR
∠PTV and ∠UTR

Multi-Step ∠ABD and ∠BDE are supplementary. Find the measures of both angles.

26. m∠ABD = 5x°, m∠BDE = (17x − 18)°

$$5x + 17x - 18 = 180$$
$$22x - 18 = 180$$
$$22x = 198$$
$$\boxed{x = 9}$$

$$m\angle ABD = 5(9) = \boxed{45°}$$

$$m\angle BDE = 180 - 45 = \boxed{135°}$$

Multi-Step ∠ABD and ∠BDC are complementary. Find the measures of both angles.

29. m∠ABD = (5y + 1)°, m∠BDC = (3y − 7)°

$$5y + 1 + 3y - 7 = 90$$
$$8y + {}^-6 = 90$$
$$8y = 96$$
$$\boxed{y = 12}$$

$$m\angle ABD = 5(12) + 1$$
$$= \boxed{61°}$$
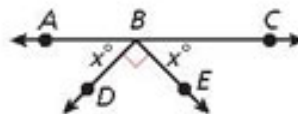
$$m\angle BDC = \boxed{29°}$$

39. What is the value of x in the diagram?

Ⓐ 15   Ⓒ 45
Ⓑ 30   Ⓓ 90

$$x + 90 + x = 180$$
$$2x = 90$$
$$\boxed{x = 45}$$

42. The measures of two supplementary angles are in the ratio 7 : 5. Which value is the measure of the smaller angle? (*Hint:* Let 7x and 5x represent the angle measures.)

Ⓕ 37.5   Ⓖ 52.5   Ⓗ 75   Ⓙ 105

$$7x + 5x$$

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