

7. If  $SK = 13x - 5$ ,  $KY = 2x + 9$ , and  $SY = 36 - x$ , find each value.

$$13x - 5 + 2x + 9 = 36 - x$$

$$15x + 4 = 36 - x$$

$$16x = 32 \quad x = 2$$

$$13(2) - 5 = 21$$

$$2(2) + 9 = 13$$

$$36 - 2 = 34$$

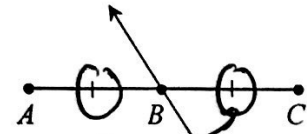
$$x = 2$$

$$SK = 21$$

$$KY = 13$$

$$SY = 34$$

## MIDPOINT of a Segment



marks for congruency Examples

- The midpoint of a segment is a point that divides the segment into two congruent segments.
- A line, ray, or segment that intersects a segment at its midpoint is said to bisect the segment and is called the segment bisector.
- In the diagram to the left, B is the midpoint of AC and line l is a segment bisector of AC.

8. If Q is the midpoint of  $\overline{PR}$ , find the value of x.

$$7x - 16 = 4x + 2$$

$$3x = 18$$

$$x = 6$$

9. If H is the midpoint of  $\overline{GI}$ , find GH.

$$5x + 2 = 9x - 10$$

$$4x = 12$$

$$x = 3$$

$$5(3) + 2 = 17$$

10. If R is the midpoint of  $\overline{QS}$ , find QS.

$$2x + 16 = 5x - 17$$

$$3x = 33$$

$$x = 11$$

$$2(11) + 16 = 38$$

$$5(11) - 17 = 38$$

$$38 + 38 = 76$$

11. If G is the midpoint of  $\overline{FH}$  and  $FH = 6y - 2$ , find y.

$$4x + 3 = 7x - 12$$

$$3x = 15$$

$$x = 5$$

$$4(5) + 3 = 23$$

$$7(5) - 12 = 23$$

$$23 + 23 = 46$$

$$6y - 2 = 46$$

$$6y = 48$$

$$y = 8$$