

LESSON
2-5

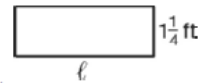
Practice B
Algebraic Proof

Solve each equation. Show all your steps and write a justification for each step.

1. $\frac{1}{5}(a + 10) = -3$

2. $t + 6.5 = 3t - 1.3$

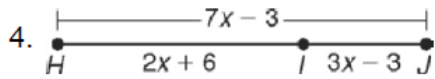
3. The formula for the perimeter P of a rectangle with length ℓ and width w is



$P = 2(\ell + w)$. Find the length of the rectangle shown here if the perimeter is $9\frac{1}{2}$ feet.

Solve the equation for ℓ and justify each step.

Write a justification for each step.



$$HJ = HI + IJ$$

$$7x - 3 = (2x + 6) + (3x - 3)$$

$$7x - 3 = 5x + 3$$

$$7x = 5x + 6$$

$$2x = 6$$

$$x = 3$$

Identify the property that justifies each statement.

5. $m = n$, so $n = m$.

6. $\angle ABC \cong \angle ABC$

7. $\overline{KL} \cong \overline{LK}$

8. $p = q$ and $q = -1$, so $p = -1$.

Practice B

1.

$$5\left[\frac{1}{5}(a+10)\right]=5(-3) \quad (\text{Mult. Prop. of } =)$$

$$a + 10 = -15 \quad (\text{Simplify.})$$

$$a + 10 - 10 = -15 - 10 \quad (\text{Subtr. Prop. of } =)$$

$$a = -25 \quad (\text{Simplify.})$$

2.

$$t + 6.5 - t = 3t - 1.3 - t \quad (\text{Subtr. Prop. of } =)$$

$$6.5 = 2t - 1.3 \quad (\text{Simplify.})$$

$$6.5 + 1.3 = 2t - 1.3 + 1.3 \quad (\text{Add. Prop. of } =)$$

$$7.8 = 2t \quad (\text{Simplify.})$$

$$\frac{7.8}{2} = \frac{2t}{2} \quad (\text{Div. Prop. of } =)$$

$$3.9 = t \quad (\text{Simplify.})$$

$$t = 3.9 \quad (\text{Symmetric Prop. of } =)$$

3.

$$P = 2(\ell + w) \quad (\text{Given})$$

$$9\frac{1}{2} = 2\left(\ell + 1\frac{1}{4}\right) \quad (\text{Subst. Prop. of } =)$$

$$9\frac{1}{2} = 2\ell + 2\frac{1}{2} \quad (\text{Distrib. Prop.})$$

$$9\frac{1}{2} - 2\frac{1}{2} = 2\ell + 2\frac{1}{2} - 2\frac{1}{2} \quad (\text{Subtr. Prop. of } =)$$

$$7 = 2\ell \quad (\text{Simplify.})$$

$$7 = \frac{2\ell}{2} \quad (\text{Div. Prop. of } =)$$

$$3\frac{1}{2} = \ell \quad (\text{Simplify.})$$

$$\ell = 3\frac{1}{2} \quad (\text{Symmetric Prop. of } =)$$

4.

Seg. Add. Post.

Subst. Prop. of =

Simplify.

Add. Prop. of =

Subtr. Prop. of =

Div. Prop. of =

5. Symmetric Prop. of =

6. Reflexive Prop. of \cong

7. Reflexive Prop. of \cong

8. Transitive Prop. of = or Subst.