Answer Key · Lesson 3.2: The Parallel Postulate and Parallel Lines

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Key

1. 71°

Two parallel lines are cut by a transversal. One angle measures 71°. Find its alternate exterior partner.

2. 133°

Two parallel lines are cut by a transversal. One angle measures 133°. Find its alternate exterior partner.

3. 133°

Two parallel lines are cut by a transversal. One angle measures 133°. Find its corresponding partner.

4. $x = 23$; 49°, 49°

1. Alternate interior angles are congruent: $3x - 20 = 4x - 43$
2. $-x = -23 \Rightarrow x = 23$
3. Each angle: $3(23) - 20 = 49^\circ$

Parallel lines are cut by a transversal. Alternate interior angles measure $(3x - 20)^\circ$ and $(4x - 43)^\circ$. Find x and both angles.

5. $x = 17$; 32°, 32°

1. Alternate exterior angles are congruent: $2x - 2 = 4x - 36$
2. $-2x = -34 \Rightarrow x = 17$
3. Each angle: $2(17) - 2 = 32^\circ$

Parallel lines are cut by a transversal. Alternate exterior angles measure $(2x - 2)^\circ$ and $(4x - 36)^\circ$. Find x and both angles.

6. $x = 17$; 28°, 28°

1. Alternate exterior angles are congruent: $2x - 6 = x + 11$
2. $x = 17 \Rightarrow x = 17$
3. Each angle: $2(17) - 6 = 28^\circ$

Parallel lines are cut by a transversal. Alternate exterior angles measure $(2x - 6)^\circ$ and $(1x + 11)^\circ$. Find x and both angles.

7. $x = 22$; 79°, 79°

1. Alternate exterior angles are congruent: $3x + 13 = 2x + 35$
2. $x = 22 \Rightarrow x = 22$
3. Each angle: $3(22) + 13 = 79^\circ$

Parallel lines are cut by a transversal. Alternate exterior angles measure $(3x + 13)^\circ$ and $(2x + 35)^\circ$. Find x and both angles.

8. $x = 25$; 88°, 88°

1. Corresponding angles are congruent: $4x - 12x + 38$
2. $2x = 50 \Rightarrow x = 25$
3. Each angle: $4(25) - 12 = 88^\circ$

Parallel lines are cut by a transversal. Corresponding angles measure $(4x - 12)^\circ$ and $(2x + 38)^\circ$. Find x and both angles.

9. $x = 12$; 54°, 54°

1. Corresponding angles are congruent: $5x - 6 = 4x + 6$
2. $x = 12 \Rightarrow x = 12$
3. Each angle: $5(12) - 6 = 54^\circ$

Parallel lines are cut by a transversal. Corresponding angles measure $(5x - 6)^\circ$ and $(4x + 6)^\circ$. Find x and both angles.

10. $x = 12$; 49°, 49°

1. Alternate interior angles are congruent: $5x - 11 = 3x + 13$
2. $2x = 24 \Rightarrow x = 12$
3. Each angle: $5(12) - 11 = 49^\circ$

Parallel lines are cut by a transversal. Alternate interior angles measure $(5x - 11)^\circ$ and $(3x + 13)^\circ$. Find x and both angles.