#12

Proofs & Parallel Lines cut by a Transversal PRACTICE

Fill in the blanks for each statement.

1. The **Vertical Angles Theorem**: If two angles are vertical angles, then they have _____ measures.

2. The **Same-Side Interior Angles Postulate**: If two parallel lines are cut by a transversal, then the pairs of same-side interior angles are _____.

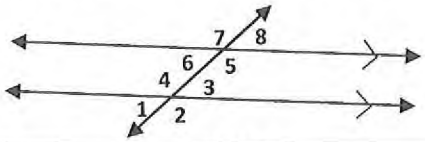
3. The **Alternate Interior Angles Theorem**: If two parallel lines are cut by a transversal, then the pairs of alternate interior angles have the _____ measure.

4. The **Corresponding Angles Theorem**: If two parallel lines are cut by a transversal, then the pairs of corresponding angles have the _____ measure.

Complete the following proofs using a two-column proof. All of the spaces may not be used.

5.

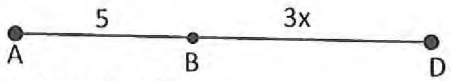
Given: p ll q
Prove: m<1 = m<8



STATEMENTS	REASONS

6.

Given: B is in between A and D
Prove: $x = -1/2$



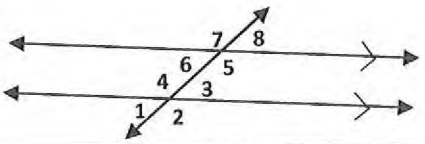
AD = 9x + 8

STATEMENTS	REASONS

7.

Given: p ll q
Prove: m<5 = m<2

You cannot use the Corresponding Angles Theorem in this proof!



STATEMENTS	REASONS

#12

Proofs & Parallel Lines cut by a Transversal PRACTICE

Fill in the blanks for each statement.

1. The **Vertical Angles Theorem**: If two angles are vertical angles, then they have equal measures.

2. The **Same-Side Interior Angles Postulate**: If two parallel lines are cut by a transversal, then the pairs of same-side interior angles are supplementary.

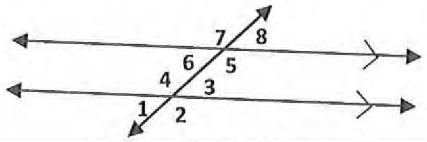
3. The **Alternate Interior Angles Theorem**: If two parallel lines are cut by a transversal, then the pairs of alternate interior angles have the same measure.

4. The **Corresponding Angles Theorem**: If two parallel lines are cut by a transversal, then the pairs of corresponding angles have the same measure.

Complete the following proofs using a two-column proof. All of the spaces may not be used.

5.

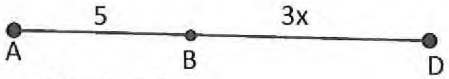
Given: p II q
Prove: m<1 = m<8



STATEMENTS	REASONS
p II q	Given
m∠1 = m∠6	Corresponding Angles Theorem
m∠6 = m∠8	Vertical Angles Theorem
m∠1 = m∠8	Transitive Prop of Equality

6.

Given: B is in between A and D
Prove: $X = -1/2$



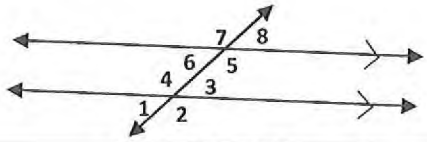
AD = 9x + 8

STATEMENTS	REASONS
B is in between A and D	Given
AB + BD = AD	Segment Addition Postulate
5 + 3X = 9X + 8	Substitution Prop of Equality
3X = 9X + 3	Subtraction Prop of Equality
−6X = 3	Subtraction Prop of Equality
$X = -\frac{1}{2}$	Division Prop of Equality

7.

Given: p II q
Prove: m<5 = m<2

You cannot use the Corresponding Angles Theorem in this proof!



STATEMENTS	REASONS
p II q	Given
m∠5 = m∠4	Alternate Interior Angles Theorem
m∠4 = m∠2	Vertical Angles Theorem
m∠5 = m∠2	Transitive Prop of Equality