Geometry A   Name: _____
Proofs involving parallel lines and transversals   Date: _____ Period: _____
Practice Worksheet #1

REASON BANK

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Addition Property	Division Property
Alternate Interior Angles Theorem	Distributive Property
Alternate Interior Angles Converse Theorem	Given
Alternate Exterior Angles Theorem	Linear Pair Postulate
Alternate Exterior Angles Converse Theorem	Multiplication Property
Combine Like Terms	Simplification
Consecutive Interior Angles Theorem	Substitution Property
Consecutive Interior Angles Converse Theorem	Subtraction Property
Corresponding Angles Postulate	Transitive Property
Corresponding Angles Converse Postulate	Vertical Angles Theorem

Complete the following proofs using "Reasons" from the **REASON BANK**.

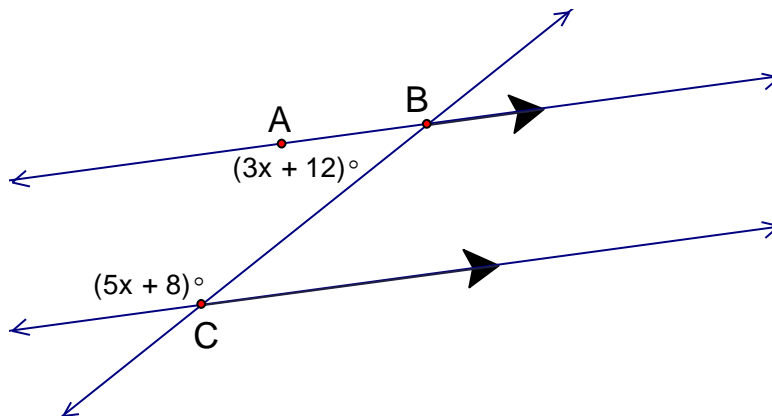1) Given the parallel lines in the picture, please prove that x = 7.
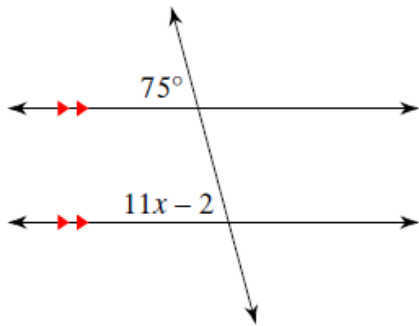
Statements	Reasons
1. the lines are ||	1.
2. 11x – 2 = 75	2.
3. 11x = 77	3.
4. x = 7	4

2. Given the parallel lines in the picture, please prove that x = 9.
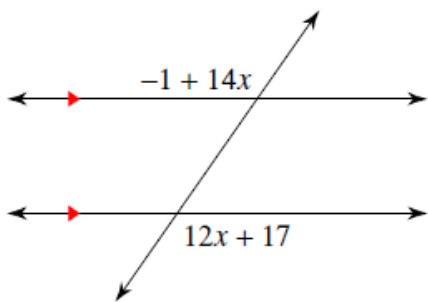
Statements	Reasons
1. The lines are ||	1.
2. -1 + 14x = 12x +17	2.
3. 14x = 12x + 18	3.
4. 2x = 18	4.
5. x = 9	5.

3) Given the parallel lines in the picture, please prove that the m∠ABC = 72°.

Statements	Reasons
1. the lines are ||	1.
2. $(3x + 12) + (5x + 8) = 180$	2.
3. $8x + 20 = 180$	3.
4. $8x = 160$	4.
5. $x = 20$	5.
6. m∠ABC = 3(20) + 12	6.
7. m∠ABC = 72°	7.

4) Given the parallel lines in the picture, please complete the following proof.
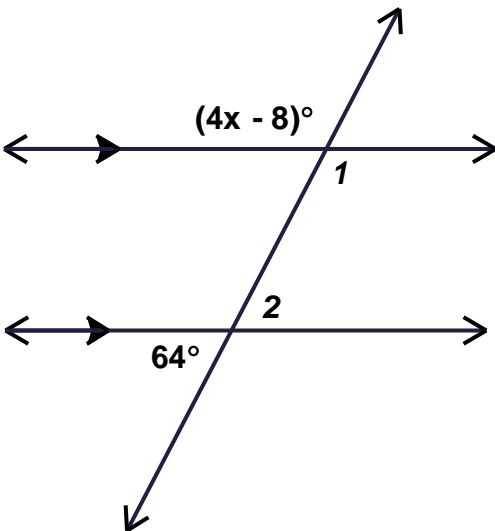
Statements	Reasons
1. the lines are ||	1.
2. $m\angle 1 = (4x - 8)°$	2.
3. $m\angle 2 = 64°$	3.
4.	4. Consecutive Interior Angles Theorem
5. $4x + 56 = 180$	5.
6.	5. Subtraction Property
7. $x = 31$	7.