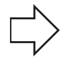
LESSON 161

1. 55555

2. 

3. *Counterexamples may vary. Samples are given.*

A) false; 1 + 3 = 4

B) true

C) true

D) false; 1 – (–1) = 2

E) true; $x + (x + 1) + (x + 2) = 3x + 3 = 3(x + 1)$

F) false; |0| = 0. Zero is neither negative nor positive.

4. If an angle measures 180°, then it is a straight angle.

If an angle is a straight angle, then it measures 180°.

5. Two angles are adjacent if and only if they have a common vertex and a common side but do not overlap.

If two angles are adjacent, then they have a common vertex and a common side but do not overlap.

If two angles have a common vertex and a common side but do not overlap, then they are adjacent.

6. If M bisects $\overline{PQ}$, then $PM = MQ$.

7. A) Division Property

B) Subtraction Property

C) Symmetric Property

D) Transitive Property

8. 2. Distributive Property

4. Subtraction Property

9. 3. All right angles are congruent.

4. Definition of congruent angles

10. C, A, D, E, B

11. *Answers may vary. Sample(s):*

A reflection over the x-axis followed by a translation of 4 units right will map $\triangle ABC$ to $\triangle DEF$. Therefore, the two triangles are congruent.

12. 2. Definition of complementary angles

3. $m\angle 1 + m\angle 3 = m\angle 2 + m\angle 3$

4. Subtraction Property

5. Definition of congruent angles

13. 2. If alternate exterior angles are congruent, then lines are parallel.

4. If alternate interior angles are congruent, then lines are parallel.

5. Transitive Property

14. parallel, perpendicular

15. Statements (Reasons)

1. $\overline{AC} \parallel l$ (Given)
2. $\angle 4 \cong \angle 1$, $\angle 5 \cong \angle 3$ (If lines are parallel, then alternate interior angles are congruent.)
3. $m\angle 4 = m\angle 1$, $m\angle 5 = m\angle 3$ (Definition of congruent angles)
4. $m\angle 4 + m\angle 2 + m\angle 5 = 180°$ (Angle Addition Postulate)
5. $m\angle 1 + m\angle 2 + m\angle 3 = 180°$ (Substitution Property)

16. A polygon with n sides can be divided into $n - 2$ triangles by the diagonals drawn from one vertex. Because the interior angle sum of each triangle is 180°, the interior angle sum of the polygon is $180(n - 2)°$.