

**Warm Up 27**

1. proof
2. Division Property of Equality
3. Symmetric Property of Equality
4. D

**Lesson Practice 27**

- a. The sum of two other angles must be less than  $90^\circ$ . By definition, an obtuse triangle contains one obtuse angle (i.e., between  $90^\circ$  and  $180^\circ$ ). Since the Triangle Angle Sum Theorem states that the sum of the angle measures of a triangle is  $180^\circ$ , each of the other angles must be less than  $90^\circ$ .

b.

Statements	Reasons
1. $\angle LNM \cong \angle LNP$	1. Given
2. $m\angle LNM = m\angle LNP$	2. Definition of congruent angles
3. $m\angle MNP = 180^\circ$	3. Definition of straight angle
4. $m\angle LNM + m\angle LNP = m\angle MNP$	4. Angle Addition Postulate
5. $2m\angle LNM = 180^\circ$	5. Substitute
6. $m\angle LNM = 90^\circ$	6. Division Property of Equality
7. $LN \perp MP$	7. Definition of perpendicular lines

c.

Statements	Reasons
1. $m\angle ACD + m\angle BCA = 180^\circ$	1. Linear Pair Theorem
2. $m\angle BCA + m\angle CAB + m\angle ABC = 180^\circ$	2. Triangle Angle Sum Theorem
3. $m\angle BCA + m\angle CAB + m\angle ABC = m\angle ACD + m\angle BCA$	3. Substitution Property
4. $m\angle BCA + m\angle CAB + m\angle ABC - m\angle BCA = m\angle ACD + m\angle BCA - m\angle BCA$	4. Subtraction Property of Equality
5. $m\angle CAB + m\angle ABC = m\angle ACD$	5. Simplify.
6. $m\angle ACD = m\angle CAB + m\angle ABC$	6. Symmetric Property of Equality

## Practice 27

1. A minor arc has the same measure as the central angle and has measures between  $0^\circ$  and  $180^\circ$ . A major arc is between  $180^\circ$  and  $360^\circ$ .
2. always true
3. No; He used a side length instead of the height of the triangle for his calculation.
- 4.

Statements	Reasons
1. $m \parallel n$	1. Given
2. $\angle 3 \cong \angle 2$	2. If parallel lines are cut by a transversal, the corresponding angles are congruent.
3. $\angle 1 \cong \angle 3$	3. Vertical angles are congruent.
4. $\angle 1 \cong \angle 2$	4. Transitive Property of Congruence

5.  $1257 \text{ ft}^2$

6. Given:  $M$  is the midpoint of  $\overline{AB}$ ;  
 Prove:  $AM = \frac{1}{2}AB$

Statements	Reasons
1. $M$ is the midpoint of $\overline{AB}$	1. Given
2. $\overline{AM} \cong \overline{MB}$	2. Definition of midpoint
3. $AM = MB$	3. Definition of Congruence
4. $AM + MB = AB$	4. Segment Addition Postulate
5. $AM + AM = AB$	5. Substitution Property of Equality
6. $2AM = AB$	6. Simplify.
7. $\frac{2AM}{2} = \frac{AB}{2}$	7. Division Property of Equality
8. $AM = \frac{1}{2} AB$	8. Simplify.

7.  $(11, 4), (6, 8)$

8. If all the math classes are full, then Raymond will enroll in theater.

9.  $153.9 \text{ in}^2$

10.  $5 \text{ ft} \times 7 \text{ ft}$

11. Priyanka takes the bus or goes to work early.

12.

Statements	Reasons
1. $m\angle 1 = 90^\circ$ , $m\angle 2 = 90^\circ$	1. Definition of right angles
2. $m\angle 1 = m\angle 2$	2. Transitive Property of Equality
3. $\angle 1 \cong \angle 2$	3. Definition of congruent angles

13. no, only when the lines it intersects are parallel

14.  $55 \text{ m}^2$ 

15.

Statements	Reasons
1. $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ and $\overleftrightarrow{EF} \parallel \overleftrightarrow{CD}$	1. Given
2. $\angle 1 \cong \angle 2$	2. Corresponding angles are congruent.
3. $\angle 2 \cong \angle 3$	3. Corresponding angles are congruent.
4. $\angle 1 \cong \angle 3$	4. Transitive property of congruence
5. $\overleftrightarrow{AB} \parallel \overleftrightarrow{EF}$	5. If two lines are cut by a transversal and the corresponding angles are congruent, the lines are parallel.

16. Sample: Any trapezium

17.

Statements	Reasons
1. $\angle 1 \cong \angle 2$	1. Given
2. $\angle 1 \cong \angle 3$	2. Vertical angles are congruent.
3. $\angle 2 \cong \angle 3$	3. Transitive Property of Congruence
4. $m \parallel n$	4. If lines cut by a transversal form congruent corresponding angles, then they are parallel.

18. 7.85 meters

19. She should measure the lengths of each side of both triangles. If three pairs of sides are congruent, then the triangles are congruent by the SSS postulate.

20. Prove:  
Solving  $4x = 8 - 2x$

Statements	Reasons
1. $4x = 8 - 2x$	1. Given
2. $4x + 2x = 8 - 2x + 2x$	2. Addition Property of Equality
3. $6x = 8$	3. Simplify.
4. $\frac{6x}{6} = \frac{8}{6}$	4. Division Property of Equality
5. $x = \frac{4}{3}$	5. Simplify.

29.  $45^\circ$   
30. acute, isosceles

21.  $y = -1$

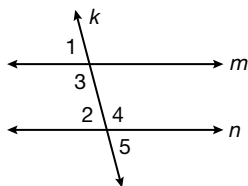
22.  $\angle T$

23. A

24. 19

25.  $x = 32$

26.



27. Sample:  $4 - 6 = -2$

28. Transitive Property of Equality