

7. yes:  $\angle 7$  and  $\angle 2$  are alternate interior angles.  
 $\angle 2$  and  $\angle 10$  are corresponding angles.
8. no
9. true
10. true:  $\angle 1$  and  $\angle 14$  are alternate exterior angles.  
 $\angle 14$  and  $\angle 16$  are corresponding angles.
11. false
12. true: Parallel lines do not intersect.
13. The two lines cut by a transversal are parallel.
14. They lie on the same plane.
15. gamma
16. alpha
17.  $\frac{1}{-1} = -1$
18.  $\frac{3}{1} = 3$
19.  $\frac{1}{-2} = -\frac{1}{2}$
20.  $\frac{1}{1} = 1$

### Lesson Practice 8A

1. square (or rectangle)
2. rectangle
3. triangle
4. rhombus (or quadrilateral)
5. trapezoid
6. parallelogram (or quadrilateral)
7.  $P = 4 + 4 + 4 + 4 = 16$  m
8.  $P = 8 + 6 + 8 + 6 = 28$  in
9.  $P = 6.1 + 5.5 + 4.9 = 16.5$  ft
10.  $P = 10 + 10 + 10 + 10 = 40$  cm
11.  $P = 3 + 6.5 + 7 + 8 = 24.5$  in
12.  $P = 15 + 23 + 15 + 23 = 76$  mm
13. true
14. true
15. false: They add up to  $360^\circ$ .

16. true
17. false: A right angle is possible but not necessary.
18. true
19. false: It has 2 pairs of parallel sides.
20. true

### Lesson Practice 8B

1. triangle
2. parallelogram
3. square
4. trapezoid
5. rhombus
6. rectangle
7.  $P = 3 + 3 + 3 + 3 = 12$  m
8.  $P = 11 + 8 + 11 + 8 = 38$  in
9.  $P = 3.9 + 5.0 + 5.3 = 14.2$  ft
10.  $P = 18 + 32 + 45 + 23 = 118$  in
11. length of unlabeled horizontal side:  
 $4 - 2 = 2$  m  
length of unlabeled vertical side:  
 $6 - 4 = 2$  m  
 $P = 4 + 4 + 2 + 2 + 2 + 6 = 20$  m
12. length of top horizontal side:  
 $40 - 12 - 12 = 16$  in  
 $P = 16 + 12 + 12 + 16 + 40 + 16 + 12 + 12 = 136$  in
13. triangle
14. quadrilateral
15. square
16. rhombus
17. triangle
18. quadrilateral
19. trapezoid
20. parallelogram

### Systematic Review 8C

1. b
2. a
3. f

4. d
5. e
6. c
7.  $P = 3 + 5 + 7 = 15$  m
8.  $P = 4 + 6 + 10 + 5 = 25$  in
9.  $180^\circ$
10.  $360^\circ$
11. is parallel to, or  $\parallel$
12. If two corresponding angles are congruent, then the lines are parallel.
13. If two lines are parallel, corresponding angles are congruent.
14. is parallel to, or  $\parallel$
15. If alternate exterior angles are congruent, the two lines cut by the transversal are parallel.
16.  $\angle 12$
17.  $106^\circ$ ;  $\angle 3$  and  $\angle 4$  are supplementary;  $\angle 4$  and  $\angle 8$  are corresponding.
18.  $\angle 3$  and  $\angle 6$  are alternate interior angles;  $\angle 6$  and  $\angle 8$  are supplementary.
19.  $74^\circ$
20.  $\angle 3$  and  $\angle 11$  are corresponding angles.

### Systematic Review 8D

1. right
2. quadrilateral
3. square
4. rhombus
5. trapezoid
6. parallelogram
7.  $P = 5 + 7 + 11 = 23$  m
8.  $P = 4 + 6 + 10 + 5 = 25$  in
9.  $P = 10 + 10 + 10 + 10 = 40$  cm
10. length of unlabeled horizontal side:  
 $10 - 2 - 3 = 5$  in  
 $P = 2 + 2.5 + 5 + 2.5 +$

11. transversal; parallel  
There may be alternate explanations for #12, 13, 14.
12.  $54^\circ$ ;  $\angle a$  and  $\angle g$  are alternate interior angles.
13.  $54^\circ$ ;  $\angle b$  and  $\angle d$  are alternate interior angles.
14.  $72^\circ$ ;  $m\angle d + m\angle g = 108^\circ$ , therefore  $m\angle 2 = 108^\circ$ : alternate interior angles
15. acute
16.  $108^\circ$
17. supplementary or adjacent
18.  $\angle FDE$ ,  $\angle FGE$ ,  $\angle 3$ , or  $\angle 2$
19. a and b (or d and g)
20. If two lines are perpendicular, they form right angles.

### Systematic Review 8E

1. true
2. false: They add up to  $180^\circ$ .
3. true
4. false: It has one pair of parallel sides.
5. true
6. false
7.  $P = 5 + 4 + 3 = 12$  in
8. length of unlabeled horizontal side:  
 $12 - 8 = 4$  in  
length of unlabeled vertical side:  
 $8 - 2 = 6$  in  
 $P = 8 + 6 + 4 + 2 + 12 + 8 = 40$  in
9.  $\overline{QT}$  or  $\overline{QR}$  or  $\overline{ST}$  or  $\overline{SQ}$  or  $\overline{RT}$   
Every line segment in the drawing cuts through a pair of parallel line segments.
10.  $\perp$ , or is perpendicular to
11.  $\parallel$ , or is parallel to
12. complementary
13. alternate
14. yes

15. no
16.  $90^\circ - 43^\circ = 47^\circ$
17. no
18. If the midpoint of line segment DP is point A, A is the middle point of the line segment.
19. slope = -2; y-intercept = 4
20. slope = 1; y-intercept = -2

### Lesson Practice 9A

1.  $A = bh = (12.4)(10.6) \approx 131.4 \text{ ft}^2$
2.  $A = \text{average base} \times \text{height} =$   
 $\left(\frac{10+15}{2}\right)(5) = \left(\frac{25}{2}\right)(5)$   
 $= \frac{125}{2} = 62.5 \text{ ft}^2$
3.  $A = \frac{1}{2}bh = \frac{1}{2}(19)(11) = 104.5 \text{ m}^2$
4.  $A = \left(\frac{9.2+11.8}{2}\right)(7.4) = 77.7 \text{ in}^2$
5.  $A = (8)(6) = 48 \text{ in}^2$
6.  $A = \frac{1}{2}(4)(6) = 12 \text{ ft}^2$
7.  $A = (6)(6) = 36 \text{ m}^2$
8.  $A = \left(\frac{5.6+7.8}{2}\right)(3.5) = 23.45 \text{ in}^2$
9.  $A = \frac{1}{2}(5)(4.3) = 10.75 \text{ cm}^2$
10.  $A = (67)(100) = 6,700 \text{ cm}^2$
11.  $A = (2.1)(4.5) = 9.45 \text{ ft}^2$
12.  $A = \frac{1}{2}(7)(3) = 10.5 \text{ ft}^2$
13. base, height
14. average
15. half

### Lesson Practice 9B

1.  $A = (7.4)(4.75) = 35.15 \text{ in}^2$
2.  $A = \left(\frac{9.2+11.8}{2}\right)(7.4) = 77.7 \text{ cm}^2$

3.  $A = \frac{1}{2}(9.2)(5.5) = 25.3 \text{ m}^2$
4.  $A = \left(\frac{12+16}{2}\right)(8) = 112 \text{ in}^2$
5.  $A = \left(\frac{9+13}{2}\right)(3) = 33 \text{ ft}^2$
6.  $A = \frac{1}{2}(3.3)(5.5) = 9.075 \text{ ft}^2$
7.  $A = (.05)(.05) = .0025 \text{ m}^2$
8.  $A = \left(\frac{112+156}{2}\right)(70) = 9,380 \text{ ft}^2$
9.  $A = \frac{1}{2}(5.33)(3.5) = 9.3275 \text{ ft}^2$
10.  $A = (2.33)(1.2) = 2.796 \text{ in}^2$
11.  $A = (4)(10) + (2)(3) = 40 + 6 = 46 \text{ in}^2$
12.  $A = \frac{1}{2}(28)(12) = 168 \text{ ft}^2$
13. perpendicular
14. trapezoid
15. rectangle

### Systematic Review 9C

1.  $A = \frac{1}{2}(5)(6) = 15 \text{ cm}^2$
2.  $A = \left(\frac{13+21}{2}\right)(12) = 204 \text{ in}^2$
3.  $A = (7)(6) = 42 \text{ ft}^2$
4.  $A = (1.5)(4.5) = 6.75 \text{ in}^2$
5. rectangle, square
6. parallelogram, rectangle, square, rhombus
7. square
8. trapezoid
9. a quadrilateral with two pairs of parallel sides
10. a quadrilateral with two pairs of parallel sides and four congruent sides and four right angles
11. yes: corresponding angles
12. yes: alternate interior angles

13. yes:  $\angle 5 \cong \angle 7$  because they are corresponding angles, and  $\angle 7 \cong \angle 15$  because they are also corresponding angles.
14.  $84^\circ$ : alternate interior angles
15.  $96^\circ$ :  $m\angle 10 = m\angle 5$ : alternate interior angles.  $m\angle 14 = 180^\circ - 84^\circ = 96^\circ$ : supplementary angles  
 $m\angle 11 = m\angle 14$ : alternate interior angles (There are several ways to find the answer.)
16.  $84^\circ$ :  $m\angle 5 = m\angle 10$ : alternate interior angles  
 $m\angle 12 = m\angle 10$ : corresponding angles
17.  $105^\circ$ :  $m\angle 13 = m\angle 5$ : corresponding angles  
 $m\angle 14 = 180^\circ - 75^\circ$ : supplementary angles
18.  $75^\circ$ : corresponding angles
19.  $75^\circ$ : alternate exterior angles
20. length of base:  
 $7 + 3 = 10$  in  
length of unlabeled vertical side:  
 $6 - 4 = 2$  in  
 $P = 3 + 6 + 10 + 4 + 7 + 2 = 32$  in
8. false: It has 2 pairs of parallel sides. If a parallelogram contains one right angle, then it will contain four right angles, and will be a rectangle, which is a special kind of parallelogram.
9. true
10. false: They add up to  $360^\circ$ .
11. yes: They are all  $90^\circ$ , because it is given that the lines are perpendicular.
12.  $79^\circ$ : vertical angles
13.  $79^\circ$ : corresponding angles
14.  $m\angle 3 = 180^\circ - 79^\circ = 101^\circ$ : supplementary angles
15. yes
16.  $\angle 16$
17.  $\angle 6$  and  $\angle 9$ ;  $\angle 5$  and  $\angle 10$ ;  $\angle 7$  and  $\angle 12$ ; or  $\angle 8$  and  $\angle 11$
18.  $\angle 1$  and  $\angle 14$ ;  $\angle 2$  and  $\angle 13$ ;  $\angle 4$  and  $\angle 15$ ; or  $\angle 3$  and  $\angle 16$
19. vertical
20. If a quadrilateral is a trapezoid, it has only one pair of parallel sides.

### Systematic Review 9D

1.  $A = \frac{1}{2}(8)(8) = 32 \text{ cm}^2$
2.  $A = \left(\frac{6.5+10.5}{2}\right)(6) = 51 \text{ in}^2$
3.  $A = (11)(12) = 132 \text{ ft}^2$
4.  $A = (5.1)(2.2) = 11.22 \text{ in}^2$
5. true
6. true
7. false: Reflex angles measure between  $180^\circ$  and  $360^\circ$ . A  $175^\circ$  angle is obtuse.

### Systematic Review 9E

1.  $A = \left(\frac{1}{2}\right)(8)(4) = 16 \text{ cm}^2$
2.  $P = 8 + 7.8 + 5 = 20.8 \text{ cm}$
3.  $A = \left(\frac{7+13}{2}\right)(3) = 30 \text{ in}^2$
4.  $P = 5 + 7 + 13 + 3.5 = 28.5 \text{ in}$
5. length of unlabeled horizontal side:  $14 - 5 - 5 = 4 \text{ cm}$   
 $A = (3)(5) + (3)(4) + (14)(5) = 15 + 12 + 70 = 97 \text{ cm}^2$
6.  $P = 14 + 8 + 4 + 3 + 5 + 3 + 5 + 8 = 50 \text{ cm}$
7.  $90^\circ$ : It is given that  $\overleftrightarrow{MP}$  is perpendicular to  $\overleftrightarrow{LN}$ .

8.  $m\angle 1 + m\angle 3 + m\angle 4 = 180^\circ$   
because they are the three angles  
of a triangle. Since  $m\angle 4 = 90^\circ$ ,  
 $m\angle 1 + m\angle 3 + 90^\circ = 180^\circ$ ,  
or  $m\angle 1 + m\angle 3 = 90^\circ$ .
9. bisector
10. perpendicular bisector
11. find the average base
12. congruent
13.  $360^\circ$
14.  $360^\circ$
15. check with ruler: line  
segment should measure  $3\frac{1}{2}$  in
16. check with ruler:  
line segment on each side of the  
bisector should measure  $1\frac{3}{4}$  in
17.  $A = (2X)(2X) = 4X^2 \text{ units}^2$   
 $P = 2X + 2X + 2X + 2X = 8X \text{ units}$
18.  $A = (A)(2A) = 2A^2 \text{ units}^2$   
 $P = A + 2A + A + 2A = 6A \text{ units}$
19.  $A = \frac{1}{2}bh = \frac{1}{2}(A)(B) = \frac{AB}{2}$  or  $\frac{1}{2}AB \text{ units}^2$   
 $P = A + B + C \text{ units}$
20.  $A = (\frac{4X+6X}{2})(2X) = (\frac{10X}{2})(2X)$   
 $= (5X)(2X) = 10X^2 \text{ units}^2$   
 $P = (4X) + (2X+2) + (6X) + (2X+1)$   
 $= 14X + 3 \text{ units}$

### Lesson Practice 10A

1. isosceles
2. scalene
3. isosceles
4. right
5. acute
6. obtuse
7. yes
8. the angles would be  $90^\circ$ ,  $45^\circ$ ,  
and  $45^\circ$ .
9. no:  $5 + 7 < 15$

10. yes:  $8 + 9 > 11$
11. isosceles
12. equilateral
13. angles
14. acute
15. obtuse
16. scalene
17. right
18. Triangles will vary.  
One angle must  $= 90^\circ$ .
19. Triangles will vary.  
All angles must  $< 90^\circ$ .
20. Triangles will vary. Two angles  
must have the same measure.

### Lesson Practice 10B

1. equilateral
2. scalene
3. isosceles
4. obtuse
5. right
6. equiangular
7. no
8. In a right triangle, one angle is  
 $90^\circ$ , and the other two must each  
be  $< 90^\circ$ .
9. yes:  $10 + 11 > 12$
10. yes:  $2 + 6 > 7$
11. two
12. three
13. zero
14. 90
15. 90
16. must be less than  $10 + 8 = 18$
17. obtuse
18. Triangles will vary. All three angles  
must have different measures.
19. Triangles will vary. One angle  
must be  $> 90^\circ$ .
20. Triangles will vary. Angles must  
have the same measure of  $60^\circ$ .