

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°
14. 360°
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. $A = (2X)(2X) = 4X^2$ units²
 $P = 2X + 2X + 2X + 2X = 8X$ units
18. $A = (A)(2A) = 2A^2$ units²
 $P = A + 2A + A + 2A = 6A$ units
19. $A = \frac{1}{2}bh = \frac{1}{2}(A)(B) = \frac{AB}{2}$ or $\frac{1}{2}AB$ units²
 $P = A + B + C$ units
20. $A = (\frac{4X+6X}{2})(2X) = (\frac{10X}{2})(2X)$
 $= (5X)(2X) = 10X^2$ units²
 $P = (4X) + (2X+2) + (6X) + (2X+1)$
 $= 14X + 3$ units

Lesson Practice 10A

1. isosceles
2. scalene
3. isosceles
4. right
5. acute
6. obtuse
7. yes
8. the angles would be 90° , 45° ,
and 45° .
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° , 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° .

Systematic Review 10C

1. isosceles
2. obtuse
3. isosceles, acute
4. triangle will have one 90° and two 45° angles
5. no
6. no : An equilateral triangle is also equiangular.
Since the angles are equal and add up to 180° , the measure of each would be $\frac{180^\circ}{3} = 60^\circ$.
7. $A = \frac{1}{2} \times 3 \times \frac{1}{2} \times 2 \times \frac{2}{3} = \frac{1}{2} \times \frac{7}{2} \times \frac{8}{3} = \frac{56}{12} = \frac{14}{3} = 4\frac{2}{3} \text{ in}^2$
8. $A = (.05)(.05) = .0025 \text{ m}^2$
9. $P = 3\frac{1}{2} + 2\frac{2}{3} + 4\frac{2}{5} = \frac{7}{2} + \frac{8}{3} + \frac{22}{5} = \frac{7}{2} \times \frac{15}{15} + \frac{8}{3} \times \frac{10}{10} + \frac{22}{5} \times \frac{6}{6} = \frac{105}{30} + \frac{80}{30} + \frac{132}{30} = \frac{317}{30} = 10\frac{17}{30} \text{ in}$
10. $P = .05 + .05 + .05 + .05 = .2 \text{ m}$
11. true
12. false: They add up to 180° .
13. true
14. true
15. false: They are coplanar.
16. true
17. false: The Greek letter beta is β .
18. false
19. true
20. length of unlabeled vertical sides:
 $5.6 - 3.6 = 2 \text{ in}$
length of unlabeled horizontal side: $1.7 + 1.6 + 2.1 + 1.6 = 7 \text{ in}$
 $A = (2)(1.6) + (2)(1.6) + (3.6)(7) = 3.2 + 3.2 + 25.2 = 31.6 \text{ in}^2$

Systematic Review 10D

1. equilateral
2. acute
3. scalene; obtuse
4. Triangles will vary. One angle must be greater than 90° , and 2 sides must be of equal length.
5. yes
6. A right triangle may have sides of three different lengths.
7. $A = \frac{1}{2}(12)(16) = 96 \text{ cm}^2$
8. $A = \frac{4+12}{2}(3) = (8)(3) = 24 \text{ m}^2$
9. $P = 16 + 20 + 12 = 48 \text{ cm}$
10. $P = 5 + 4 + 5 + 12 = 26 \text{ m}$
11. yes: alternate interior angles
12. yes: alternate interior angles
13. $m\angle 8 = 90^\circ$
 $m\angle 11 = 35^\circ$
 $m\angle 7 + m\angle 8 + m\angle 11 = 180^\circ$
 $m\angle 7 + 90^\circ + 35^\circ = 180^\circ$
 $m\angle 7 = 180^\circ - 90^\circ - 35^\circ = 55^\circ$
14. vertical; right (or supplementary)
15. 180°
16. alpha
17. yes
18. 30°
19. Check with a protractor. The two smaller angles should each measure 20.5° .
20. length of unlabeled vertical sides:
 $5.6 - 3.6 = 2 \text{ in}$
length of unlabeled horizontal side:
 $1.7 + 1.6 + 2.1 + 1.6 = 7 \text{ in}$
 $P = 7 + 5.6 + 1.6 + 2 + 2.1 + 2 + 1.6 + 2 + 1.7 + 3.6 = 29.2 \text{ in}$

Systematic Review 10E

1. scalene
2. right
3. equilateral, equiangular

4. All angles should be less than 90° ; no angles or sides should have the same measure.
5. no
6. By definition, all angles in an acute triangle are less than 90° .
7. $A = \frac{1}{2}(6)(18.4) = 55.2 \text{ ft}^2$
8. $A = (7.7)(4.9) = 37.73 \text{ m}^2$
9. $P = 12 + 10 + 18.4 = 40.4 \text{ ft}$
10. $P = 7.7 + 5.3 + 7.7 + 5.3 = 26 \text{ m}$
11. $\perp$; $\angle ACD$ is marked as a right angle
12. bisects; $m\angle 1 = m\angle 2$
13. $\overline{ACB}$ and $\overline{ACD}$, or 1 and 2
14. C is the midpoint of $\overline{BD}$.
15. $A = (11)(11) - (7)(7) = 121 - 49 = 72 \text{ in}^2$
16. $P = 11 + 11 + 11 + 11 = 44 \text{ in}$

For numbers 17-20,
the last term may vary.

17. $Y = -\frac{1}{2}X - 1$
18. $Y = 3X + 5$
19. $Y = -2X$
20. $Y = 4X + 3$

Lesson Practice 11A

1. c
2. d
3. b
4. e
5. f
6. a
7. 5
8. 6
9. $180^\circ \times 6 = 1,080^\circ$
10. $1,080^\circ \div 8 = 135^\circ$
11. $180^\circ - 135^\circ = 45^\circ$

12. $45^\circ \times 8 = 360^\circ$
13. $(N - 2)(180^\circ)$
14. dodecagon;
 $360^\circ \text{ total} \div 30^\circ = 12 \text{ sides}$
15. $8 + 2 = 10$; decagon
16. $(N - 2)(180^\circ) \Rightarrow ((15) - 2)(180^\circ) = 13(180^\circ) = 2,340^\circ$
17. $2,340^\circ \div 15 = 156^\circ$
18. $360^\circ \div 15 = 24^\circ$
for each exterior angle;
 $180^\circ - 24^\circ = 156^\circ$
for each interior angle

Lesson Practice 11B

1. b
2. d
3. a
4. f
5. e
6. c
7. 2
8. 3
9. $180^\circ \times 3 = 540^\circ$
10. $540^\circ \div 5 = 108^\circ$
11. $180^\circ - 108^\circ = 72^\circ$
12. $72^\circ \times 5 = 360^\circ$
13. $(N - 2) \times 180^\circ$
14. decagon: $360^\circ \div 36^\circ = 10 \text{ sides}$
15. Six triangles would mean 8 sides,
so it would be an octagon.
16. $(N - 2) \times 180^\circ \Rightarrow ((3) - 2) \times 180^\circ = (1) \times 180^\circ = 180^\circ$
17. $180^\circ \div 3 = 60^\circ$
18. Exterior angles add up to 360° :
 $360^\circ \div 3 = 120^\circ$
for each exterior angle.
Interior angles
are $180^\circ - 120^\circ = 60^\circ$.