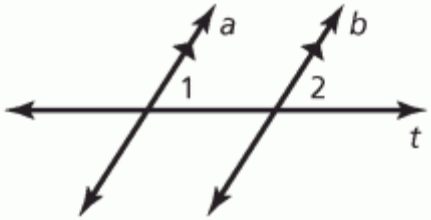
Pg 108-109 #1-25 odd

1. *Sample answer:*



3. m and n

5. 8

7. $\angle 1 = 107°, \angle 2 = 73°$

9. $\angle 5 = 49°, \angle 6 = 131°$

11. 60°; Corresponding angles are congruent.

13. *Sample answer:* rotate 180° and translate down.

15. $\angle 6 = 61°$; $\angle 6$ and the given angle are vertical angles.
$\angle 5 = 119°$ and $\angle 7 = 119°$;
$\angle 5$ and $\angle 7$ are supplementary to the given angle.
$\angle 1 = 61°$; $\angle 1$ and the given angle are corresponding angles.
$\angle 3 = 61°$; $\angle 1$ and $\angle 3$ are vertical angles.
$\angle 2 = 119°$ and $\angle 4 = 119°$;
$\angle 2$ and $\angle 4$ are supplementary to $\angle 1$.

17. $\angle 2 = 90°$; $\angle 2$ and the given angle are vertical angles.
$\angle 1 = 90°$ and $\angle 3 = 90°$; $\angle 1$ and $\angle 3$ are supplementary to the given angle.
$\angle 4 = 90°$; $\angle 4$ and the given angle are corresponding angles.
$\angle 6 = 90°$; $\angle 4$ and $\angle 6$ are vertical angles.
$\angle 5 = 90°$ and $\angle 7 = 90°$; $\angle 5$ and $\angle 7$ are supplementary to $\angle 4$.

19. 132°; *Sample answer:* $\angle 2$ and $\angle 4$ are alternate interior angles and $\angle 4$ and $\angle 3$ are supplementary.

21. 120°; *Sample answer:* $\angle 6$ and $\angle 8$ are alternate exterior angles.

23. 61.3°; *Sample answer:* $\angle 3$ and $\angle 1$ are alternate interior angles and $\angle 1$ and $\angle 2$ are supplementary.

25. They are all right angles because perpendicular lines form 90° angles.

Pg 114-115 #1-21 odd

1. Subtract the sum of the given measures from 180°.

3. 115°, 120°, 125°

5. 40°, 65°, 75°

7. 25°, 45°, 110°

9. 48°, 59°, 73°

11. 45

13. 140°

15. The measure of the exterior angle is equal to the sum of the measures of the two nonadjacent interior angles. The sum of all three angles is not 180°;

$$(2x - 12) = x + 30$$
$$x = 42$$

The exterior angle is $(2(42) - 12)° = 72°$.

17. 126°

19. sometimes; The sum of the angle measures must equal 180°.

21. never; If a triangle had more than one vertex with an acute exterior angle, then it would have to have more than one obtuse interior angle which is impossible.

Pg 123-124 #1-23 odd

1. *Sample answer:*

3. What is the measure of an interior angle of a regular pentagon?; 108°; 540°

5. 1260°

7. 360°

9. 1260°

11. no; The interior angle measures given add up to 535°, but the sum of the interior angle measures of a pentagon is 540°.

13. 90°, 135°, 135°, 135°, 135°, 90°

15. 140°

17. 140°

19. The sum of the interior angle measures should have been divided by the number of angles, 20. 3240° ÷ 20 = 162°; The measure of each interior angle is 162°.

21. 24 sides

23. 75°, 93°, 85°, 107°

Pg 130-131 #1-17 odd

1. Write a proportion that uses the missing measurement because the ratios of corresponding side lengths are equal.

3. *Sample answer:* Two of the angles are congruent, so they have the same sum. When you subtract this from 180°, you will get the same third angle.

5. Student should draw a triangle with the same angle measures as the ones given in the textbook. If the student's triangle is larger than the one given, then the ratio of the corresponding side lengths, $\frac{\text{student's triangle length}}{\text{book's triangle length}}$, should be greater than 1. If the student's triangle is smaller than the one given, then the ratio of the corresponding side lengths, $\frac{\text{student's triangle length}}{\text{book's triangle length}}$, should be less than 1.

7. no; The triangles do not have two pairs of congruent angles.

9. yes; The triangles have the same angle measures, 81°, 51°, and 48°.

11. yes; The triangles have two pairs of congruent angles.

13. See *Taking Math Deeper.*

15. 30 ft

17. maybe; They are similar when both have measures of 30°, 60°, 90° or both have measures of 45°, 45°, 90°. They are not similar when one has measures of 30°, 60°, 90° and the other has measures of 45°, 45°, 90°.

Pg 133-135 #1-15

1. 140°; $\angle 8$ and the given angle are alternate exterior angles.
2. 140°; $\angle 8$ and $\angle 5$ are vertical angles.
3. 40°; $\angle 8$ and $\angle 7$ are supplementary.
4. 40°; $\angle 2$ and the given angle are supplementary.
5. 41°, 49°, 90°
6. 35°, 35°, 110°
7. 125°
8. 110°
9. 77°, 60°, 128°, 95°
10. 110°, 135°, 125°, 135°, 105°, 150°, 140°
11. 125°, 100°, 120°, 60°, 250°, 65°
12. 135°, 100°, 125°
13. 60°, 60°, 60°, 60°, 60°, 60°
14. yes; The triangles have the same angle measures, 90°, 68°, and 22°.
15. yes; The triangles have two pairs of congruent angles.