Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Chapter 3 Final Review

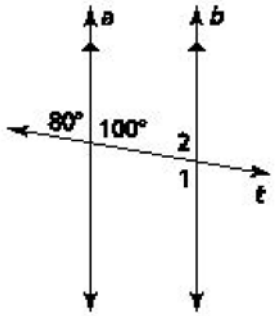
Multiple Choice
Identify the choice that best completes the statement or answers the question.

Find the sum of the interior angle measures of the polygon.

1.

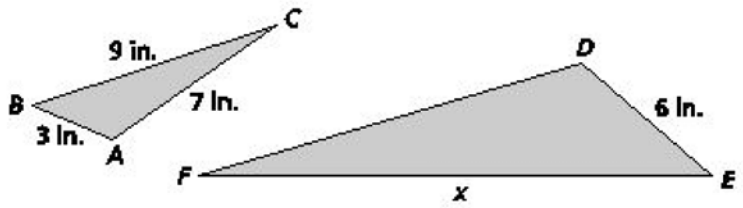
a. 360°
b. 720°
c. 380°
d. 270°

2. What is the measure of ∠1?



a. 80°
b. 90°
c. 100°
d. 180°

3. The figures are similar.

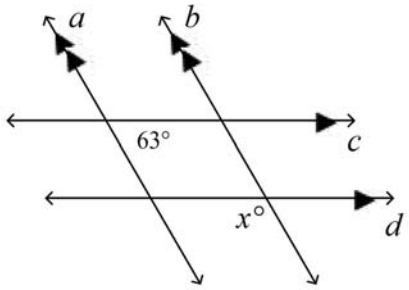


What is the value of x?

a. 2 inches
b. 7.7 inches
c. 14 inches
d. 18 inches

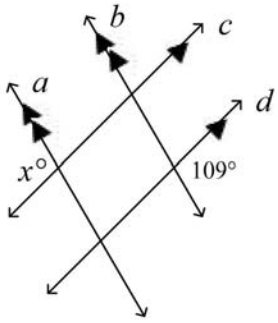
Find the value of *x*.

4.



a. 27
b. 63
c. 118
d. 117

5.



a. 105
b. 109
c. 71
d. 19

Name the word that matches the definition given.

6. A line that intersects two or more lines

a. transversal
b. interior angles
c. exterior angles
d. interior angles of a polygon
e. exterior angles of a polygon
f. convex polygon

7. When two parallel lines are cut by a transversal, four ____ are formed on the inside of the parallel lines
   a. transversal
   b. interior angles
   c. exterior angles
   d. interior angles of a polygon
   e. exterior angles of a polygon
   f. convex polygon

8. When two parallel lines are cut by a transversal, four ____ are formed on the outside of the parallel lines.
   a. transversal
   b. interior angles
   c. exterior angles
   d. interior angles of a polygon
   e. exterior angles of a polygon
   f. convex polygon

9. The angles inside a polygon.
   a. transversal
   b. concave polygon
   c. regular polygon
   d. interior angles of a polygon
   e. exterior angles of a polygon
   f. convex polygon

10. The angles outside a polygon that are adjacent to the interior angles.
    a. transversal
    b. concave polygon
    c. regular polygon
    d. interior angles of a polygon
    e. exterior angles of a polygon
    f. convex polygon

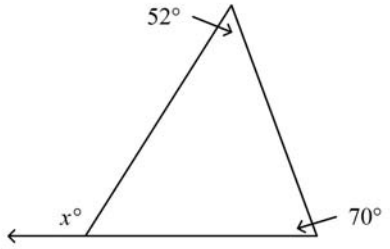
11. A polygon in which every line segment connecting any two vertices lies entirely inside the polygon.
    a. transversal
    b. interior angles
    c. exterior angles
    d. interior angles of a polygon
    e. concave polygon
    f. convex polygon

12. A polygon in which at least one line segment connecting any two vertices lies outside the polygon.
    a. concave polygon
    b. regular polygon
    c. indirect measure
    d. interior angles of a polygon
    e. exterior angles of a polygon
    f. convex polygon

13. A polygon in which all the sides are congruent, and all the interior angles are congruent.
    a. concave polygon
    b. regular polygon
    c. indirect measurement
    d. interior angles of a polygon
    e. exterior angles of a polygon
    f. convex polygon

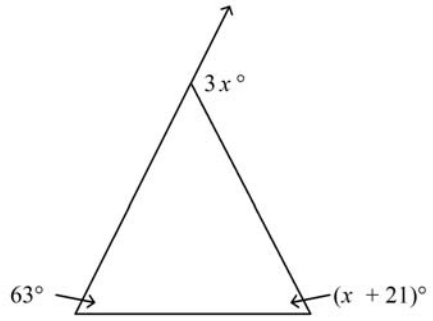
14. ____ uses similar figures to find a missing measure when it is difficult to find directly.
    a. concave polygon
    b. regular polygon
    c. indirect measurement
    d. interior angles of a polygon
    e. exterior angles of a polygon
    f. convex polygon

15. Find the measure of the exterior angle.



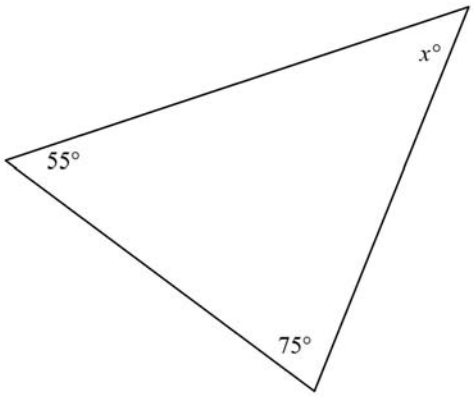
a. 70°
b. 52°
c. 122°
d. 58°

16. Find the measure of the exterior angle.



a. 126°
b. 42°
c. 24°
d. 63°

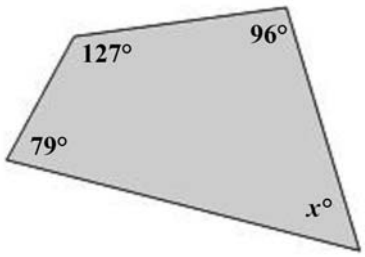
17. Find the measure of the interior angle.



a. 45°
b. 130°
c. 55°
d. 50°

18. The interior angles of a regular polygon each measure 144°. How many sides does the polygon have?
a. 9
b. 10
c. 12
d. 11

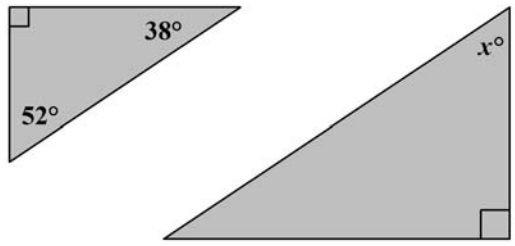
19.



a. 58°
b. 360°
c. 63°
d. 418°

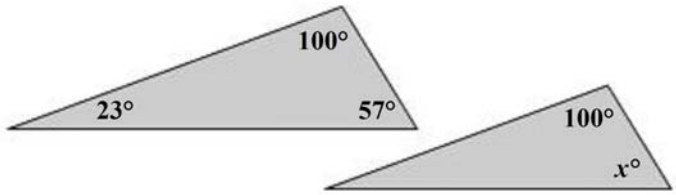
The triangles are similar. Find the value of *x*.

20.



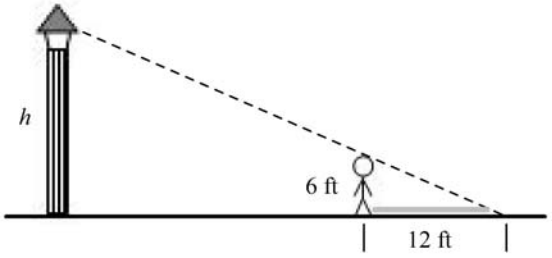
a. 38
b. 14
c. 90
d. 52

21.



a. 23
b. 57
c. 100
d. 123

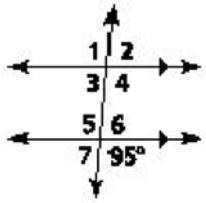
22. A person standing 28 feet from a street light casts a shadow as shown. What is the height *h* of the street light? Assume the triangles are similar.



a. 17 ft
b. 40 ft
c. 20 ft
d. 21 ft

Short Answer

Use the figure to find the measure of the angle. Explain your reasoning.



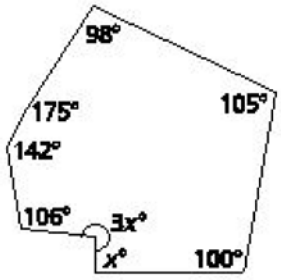
23. ∠3

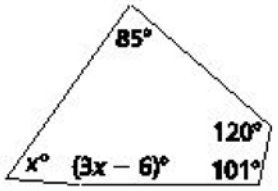
24. ∠5

25. $\angle 6$

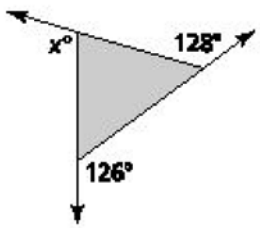
26. $\angle 2$

Find the measures of the interior angles of the polygon.

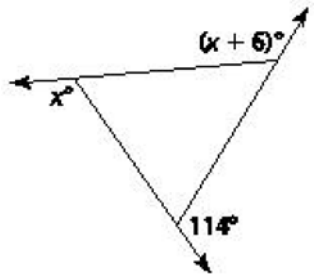
27. 

28. 

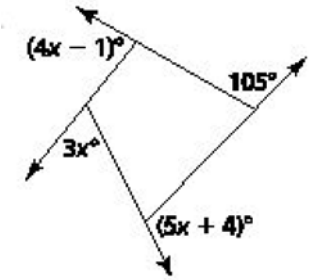
Find the measures of the exterior angles of the polygon.

29. 

30.



31.



32. Can a hexagon have angles that measure 85°, 62°, 135°, 95°, 173°, and 160°? Explain.

33. Five angles of a hexagon measures 150°, 82°, 127°, 99°, *and* 101°. Find the sixth angle measure.

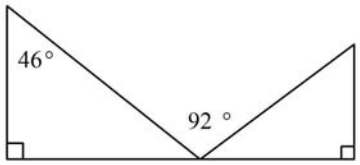
34. The painted lines that separate parking spaces are parallel. The measure of $\angle 1$ is 60°. What is the measure of $\angle 2$? Explain.

35. **Error Analysis** Describe and correct the error in finding the sum of the interior angle measures of a 19-gon.

$$S = n \bullet 180°$$
$$= 19 \bullet 180°$$
$$= 3420°$$

36. Can an octagon have angles that measure 140°, 120°, 50°, 95°, 105°, 100°, 80°, and 150°? Explain.

37. Tell whether the triangles are similar. Explain.



38. How can you use similar triangles to find a missing measurement?

Chapter 3 Final Review
Answer Section

MULTIPLE CHOICE

1. A
2. C
3. D
4. D
5. B
6. A
7. B
8. C
9. D
10. E
11. F
12. A
13. B
14. C
15. C
16. A
17. D
18. B
19. A
20. D
21. B
22. C

SHORT ANSWER

23. 85°; *Sample answer*: $\angle 6$ and the given angle are supplementary, and $\angle 6$ and $\angle 3$ are alternate interior angles.
24. 95°; $\angle 5$ and the given angle are vertical angles.
25. 85°; $\angle 6$ and the given angle are supplementary.
26. 85°; *Sample answer*: $\angle 1$ and the given angle are alternate exterior angles, and $\angle 1$ and $\angle 2$ are supplementary.
27. 88.5°, 100°, 105°, 98°, 175°, 142°, 106°, 265.5°
28. 60°, 85°, 120°, 101°, 174°
29. 106°; 128°; 126°
30. 114°, 120°, 126°
31. 63°, 83°, 105°, 109°
32. no; The sum of the angle measures must be 720°, not 710°.
33. 161°
34. 60°; Corresponding angles are congruent.

35. The right side of the formula is $(n-2) \bullet 180°$, not $n \bullet 180°$.
$S = (n-2) \bullet 180°$

$= (19-2) \bullet 180°$

$= 3060°$

36. no; The angles given add up to 840°, but the sum of the interior angles of an octagon is 1080°.
37. Yes. The triangles have two pairs of congruent angles.
38. Write a proportion that uses the missing measurement because the ratios of corresponding side lengths are equal.