Chapter 8 Geometry Review

1. If $a$ and $b$ are parallel lines and $m\angle 3 = 128^\circ$, what is the measure of $\angle 8$?

   $\angle 8 = \angle 1$ or $\angle 2$

   Not drawn to scale

2. Two angles are complementary. One angle measures $x$ degrees and the other measures $y$ degrees.
   a. Write an equation expressing these angles as complementary.
   b. Solve the equation for $y$ if $x^\circ = 44^\circ$.

3. Use the diagram below.
   a. Find the measures of $\angle 1$ and $\angle 2$.
   b. What kind of angles are they?
   c. Are lines $A$ and $C$ parallel? Explain your answer.
In the diagram $a \parallel b$. Use the diagram to answer the question. 
(Diagram not to scale.)

4. Name the corresponding angle to $\angle 5$.

5. Name the alternate interior angle to $\angle 7$.

6. If $m\angle 6 = 21^\circ$, what is $m\angle 4$?

7. If $m\angle 4 = (3x)^\circ$ and $m\angle 8 = (x + 40)^\circ$, what is the measure of $\angle 4$?

8. The diagram shows the dimensions of the front of a storage building. What is the area of the entire front of the building?
Find the area of the trapezoid.

9. Find the area of the trapezoid.

![Diagram of a trapezoid with dimensions: base 15 ft, top 20 ft, height 25 ft.]

Diagam not to scale.

10. A field is to be fertilized at a cost of $0.08 per square yard. The rectangular part of the field is 95 yards long and the diameter of each semicircle is 49 yards. Find the cost of fertilizing the field. Use 3.14 for $\pi$.

![Diagram of a field with a rectangular and circular part.]

11. The diagram shows a square of side 3 in. containing a circle of diameter 3 in. To the nearest hundredth, what is the area of the shaded part of the figure? Use 3.14 for $\pi$.

![Diagram of a square with a circle inside it.

12. The measure of $\angle 4$ is 125°. Find the measure of $\angle 1$.

![Diagram of intersecting lines with angles 1, 2, 3, and 4 labeled.]
13. Select the measure of the complement or supplement of the angle. If there is no complement or supplement, select *no complement or supplement*.

55.1°

14. Find the measure of $\angle s$.

15. Identify the pair of angles as *corresponding*, *alternate interior*, *both*, or *neither*.

$\angle 6, \angle 2$

16. Is line $l$ parallel to line $m$? Explain.

17. Classify the triangle with side lengths 4, 4, and 4.

18. Classify the triangle with angles measuring 69°, 42°, and 69°.
19. Determine the best name for the quadrilateral.

20. Find the sum of the measures of the interior angles of an octagon.

21. Find the sum of the measures of the interior angles of a polygon with 9 sides.

22. Find the missing angle measure in the figure.

23. A trapezoid has an area of 160 cm$^2$. The length of one base is 20 cm and the height is 10 cm. What is the length of the other base?

24. Find the measure of each angle of a regular polygon with 8 sides.
Find the area of the polygon.

25. Not drawn to scale

26. Find the diameter of a circle with a circumference of 52.7 mm. Round your answer to the nearest tenth.

27. Find the area of the irregular figure. Round your answer to the nearest tenth.
28. Find the area of the shaded region. Round your answer to the nearest tenth.

![Diagram of a shaded region with circle and square]

**Essay**

29. The Flying Eagle Wild Bird and Game Preserve is shaped approximately as in the diagram.

![Diagram of a trapezoid-shaped preserve]

**a.** Find the area of the preserve in square miles. Explain how you find the area.

**b.** There are 640 acres in one square mile. What is the area of the preserve in acres? Explain how you find the number of acres.

**c.** Additional land is available for the preserve. The preserve could be expanded to another trapezoid-shaped region with the same height but with bases of length 7 miles and 5 miles. If the preserve is expanded to this new area, what is the percent of increase in area? Explain how you find the percent.

30. At the Magic Garden, a rose garden is being designed as shown. The outer figure is a square with side length of 116 feet.

![Diagram of a square with circles]

**a.** What is the diameter of one circle? Explain how you find the diameter.

**b.** The roses are to be planted in the four circles. The rest of the space will be covered by wood chips. What is the area of the surface that will be covered by wood chips? Explain how you find this area.