Write the letter for the correct answer in the blank at the right of each question.

1. Find the area of parallelogram ABCD.
   Round to the nearest tenth.
   A 54 in²  B 76.4 in²  C 95.2 in²  D 162.7 in²
   \[ A = (12)(6.3) \]

2. The area of parallelogram PQRS is 187 square units.
   Find the base if the height is 11 units.
   A \( b \) = 14 units  B \( b \) = 17 units
   \[ 187 = \frac{x(11)}{11} \]
   \[ x = 17 \]

3. The height of a parallelogram is one-third its base. If the area of the parallelogram is 363 square inches, find its base and height.
   A \( b = 33 \text{ in}, \ h = 11 \text{ in.} \)  B \( b = 30 \text{ in}, \ h = 33 \text{ in.} \)
   \[ 363 = b \cdot h \]
   \[ x = 11'' \]
   \[ 363 = (3x)(x) \]
   \[ 363 = 3x^2 \]
   \[ x = x^2 \]

4. Find the area of kite ABCD.
   A \( A = 10.5 \text{ cm}^2 \)  B \( A = 52 \text{ cm}^2 \)
   C \( A = 21 \text{ cm}^2 \)  D \( A = 104 \text{ cm}^2 \)
   \[ A = \frac{1}{2} d_1 d_2 \]
   \[ = \frac{1}{2} (8)(13) \]
   \[ = 52 \text{ cm}^2 \]
5. A trapezoid has base lengths of 8.5 and 14.5 feet with an area of 184 square feet. What is the height of the trapezoid?
   A 4 ft  
   B 8 ft  
   C 16 ft  **D 23 ft**

\[ A = \frac{1}{2} h (b_1 + b_2) \]
\[ 184 = \frac{1}{2} h (8.5 + 14.5) \]
\[ 184 = \frac{1}{2} h \times 23 \]
\[ \frac{184}{11.5} = h \]
\[ h = 16 \]

6. Rhombus \( ABCD \) has an area of 126 square units. If \( DB = 18 \text{ units} \), find \( AC \).
   A 9 units  
   B 14 units  **C 7 units**  
   D 3.5 units

\[ A = \frac{1}{2} d_1 d_2 \]
\[ 126 = \frac{1}{2} (18) x \]
\[ 126 = 9x \]
\[ x = 14 \]

7. Find the diameter of a circle with an area of 804.2 square centimeters.
   A 8 cm  
   B 32 cm  **C 48 cm**  
   D 64 cm

\[ A = \pi r^2 \]
\[ 804.2 = \pi r^2 \]
\[ \frac{804.2}{\pi} = r^2 \]
\[ \sqrt{255.98} = r \]
\[ r = 15.9 \]
\[ d = 32 \]

8. If \( m \angle EGF = 235 \), find the area of the shaded sector.
   A 82.3 in\(^2\)  
   B 820.3 in\(^2\)  
   C 436.3 in\(^2\)  **D 1256.6 in\(^2\)**

\[ \frac{x}{360} \times 235 \times \pi \]
\[ x = \frac{125}{\pi} \times 360 \]
\[ 360x = 157080 \]
\[ x = 43.6 \]
9. Find the area of an equilateral triangle with a side length of 12 centimeters. Round to the nearest tenth.
A 187.1 cm²  C 62.4 cm²
B 93.5 cm²  D 54 cm²

\[ \frac{\sqrt{3}}{4} \times 12^2 \]
\[ \frac{144\sqrt{3}}{4} \]
\[ 36\sqrt{3} \]
\[ 62.4 \]

10. Find the area of an octagon with a perimeter of 80 inches. Round to the nearest tenth.
A 965.7 in²  C 402.8 in²
B $355.7$ in²  D 82.8 in²

\[ \tan 22.5 \times 5 \]
\[ \frac{12.07}{5} \]
\[ 2.41 \]

11. Find the area of the shaded region. Round to the nearest tenth.
A 12.6 m²  C 32.9 m²
B 24.6 m²  D 44.9 m²

\[ \frac{1}{4} \sqrt{3} (8\sqrt{3})^2 \]
\[ 64.3 \]
\[ 192 \]
\[ \sqrt{48} \approx 8 \times 4 - 50.26 \]
\[ 32.9 \]

12. Find the area of the figure. Round to the nearest tenth.
A 14.6 units²  C 18.2 units²
B 15 units²  D 22.4 units²

\[ \pi \times 15^2 \times \frac{1}{2} \]
\[ 3.5 + 15 - \frac{1}{2} \times 4 \]
\[ 14.63 \]
13. Gerry wants to have a cover made for his swimming pool which consists of two parallel lines that are connected at each end by the curved boundary of a semicircle. The parallel lines are 12 feet long and 10 feet apart. Find the area of the swimming pool cover.
A 572.39 ft²  
B 233.02 ft²  
C 434.16 ft²  
D 198.54 ft²

\[ \pi \cdot 5^2 = 78.5 \]

\[ 10 \times 12 = 120 \]

\[ 120 \div 20 = 6 \]

\[ 198.54 \]

14. Find the area of the hexagon.

\( \text{A} \) 69.9 ft²  
\( \text{B} \) 419.2 ft²  
\( \text{C} \) 419.2 ft²  
\( \text{D} \) 634.7 ft²

15. A pie has a diameter of 9 inches. Each slice of the pie has a central angle of 45°. What is the area of each slice of pie?
A 8.0 in²  
B 31.8 in²  
C 127.2 in²  
D 221.8 in²

\[ \frac{45}{360} = \frac{1}{8} \]

\[ x = \frac{1}{8} \cdot 28.27 \]

\[ x = 3.62 \]

\[ 45 \div 360 = 0.125 \]

\[ x = 7.95 \]

16. \( \triangle ABC \) is similar to \( \triangle A_1B_1C_1 \). If \( \angle A = 50^\circ \), \( \angle B = 70^\circ \), and \( \angle C = ? \) find the value of \( x \).

\[ \frac{13^2}{7^2} = \frac{50}{x} \]

\[ x = 14.5 \text{ in}^2 \]