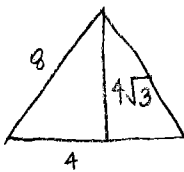


1. The side lengths of an equilateral triangle are 8 cm. Find the area of the triangle.



$$A = \frac{1}{2}bh$$

$$= \frac{1}{2}(8)(4\sqrt{3}) = \boxed{16\sqrt{3} \approx 27.7 \text{ cm}^2}$$

2. In a trapezoid, the long base is 4 times the shorter base. The height is 10 cm. If the area is 150 cm<sup>2</sup>, what are the lengths of the bases?

$$A = \frac{1}{2}(h)(b_1 + b_2)$$

$$150 = \frac{1}{2}(10)(4s + s) = 5(5s)$$

$$\frac{150}{5} = \frac{25s}{5}$$

$$s = 6$$

$$b_1 = 4(6) = \boxed{24 \text{ cm}}$$

$$b_2 = \boxed{6 \text{ cm}}$$

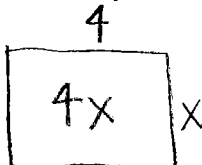
3. A kite has an area of  $4x^2$  and the length of one diagonal is 1. What is the length of the second diagonal?

$$A = \frac{d_1 \cdot d_2}{2}$$

$$4x^2 = \frac{1 \cdot d_2}{2}$$

$$\boxed{d_2 = 8x^2}$$

4. Find the perimeter of a rectangle in which the  $A = 4x$ , if one of the sides is 4.



$$A = b \cdot h$$

$$4x = 4 \cdot h$$

$$h = x$$

$$P = 4 + 4 + x + x$$

$$\boxed{P = 8 + 2x}$$

5. Find the area and perimeter of a square where each side is  $(x + 6)$  in.

$$A = (x+6)(x+6)$$

$$\boxed{A = x^2 + 12x + 36 \text{ in}^2}$$

$$P = (x+6)(4)$$

$$\boxed{P = 4x + 24 \text{ in}}$$

6. Find the area of a trapezoid where  $b_1 = 2x$  in,  $b_2 = 5x$  in, and  $h = 3x$  in.

$$A = \frac{1}{2}h(b_1 + b_2)$$

$$A = \frac{1}{2}(3x)(2x + 5x)$$

$$A = \frac{1}{2}(3x)(7x) = \frac{21x^2}{2} \text{ in}^2 \text{ or } \boxed{10.5x^2 \text{ in}^2}$$

7. Find the height of a trapezoid in which  $A = 120 \text{ cm}^2$ ,  $b_1 = 4 \text{ cm}$ ,  $b_2 = 20 \text{ cm}$ .

$$A = \frac{1}{2}h(b_1 + b_2)$$

$$120 = \frac{1}{2}h(4 + 20)$$

$$120 = \frac{1}{2}h(24) = 12h$$

$$\boxed{h = 10 \text{ cm}}$$

8. Find the area of a circle whose  $C = 10\pi$ .

$$C = 2\pi r$$

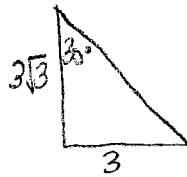
$$\frac{10\pi}{2\pi} = \frac{2\pi r}{2\pi}$$

$$r = 5$$

$$A = \pi r^2$$

$$A = 25\pi$$

9. Find the area of a hexagon, whose apothem =  $3\sqrt{3}$ .



$$A = \frac{1}{2} a \cdot n \cdot s$$

$$A = \frac{1}{2} (3\sqrt{3})(6)(6) = 54\sqrt{3}$$

10. Find the diameter of a circle in which the area is  $64\pi \text{ in}^2$ .

$$A = \pi r^2$$

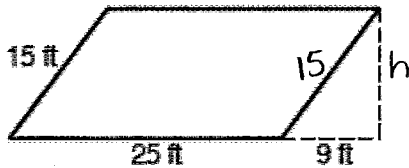
$$\frac{64\pi}{\pi} = \frac{\pi r^2}{\pi}$$

$$r = 8$$

$$d = 2r$$

$$d = 16 \text{ in}$$

11. Find the area of the parallelogram.



$$A = b \cdot h$$

$$A = 12 \cdot 25$$

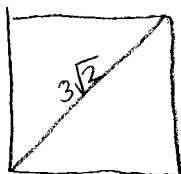
$$A = 300 \text{ ft}^2$$

$$h^2 = 15^2 - 9^2$$

$$h^2 = 144$$

$$h = 12$$

12. A square's diagonal measures  $3\sqrt{2}$  mm. Find its area.

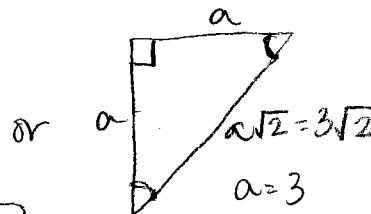


$$A = \frac{1}{2} d_1 \cdot d_2$$

$$A = \frac{1}{2} (3\sqrt{2})(3\sqrt{2})$$

$$A = \frac{1}{2} 9\sqrt{4}$$

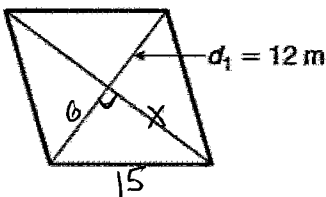
$$A = 9 \text{ mm}^2$$



$$a = 3$$

$$A = 3 \cdot 3 = 9 \text{ mm}^2$$

13. Find the area of the rhombus below if the side lengths are each 15 m.



$$x^2 = 15^2 - 6^2$$

$$x^2 = 189$$

$$x \approx 13.7$$

$$A = \frac{1}{2} d_1 \cdot d_2$$

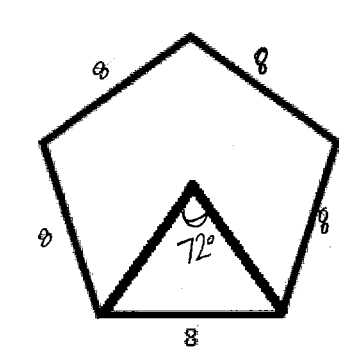
$$A = \frac{1}{2} (12)(27.4)$$

$$A = 164.4 \text{ m}^2$$

$$d_2 = 2x$$

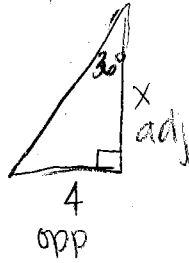
$$d_2 = 27.4 \text{ m}$$

14. Find the area of the regular polygon below.



$$P = 40$$

$$A = \frac{1}{2} a p$$



$$\tan 36 = \frac{4}{x}$$

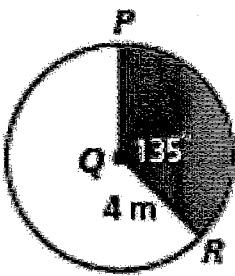
$$x = \frac{4}{\tan 36}$$

$$x = 5.5$$

$$A = \frac{1}{2} (5.5)(40)$$

$$A = 110.1$$

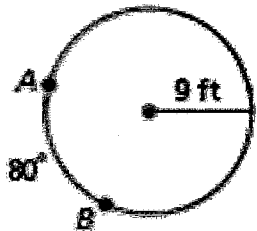
15. Find the sector area. Round your answer to the nearest tenth.



$$\frac{A}{\pi r^2} = \frac{x}{360} \rightarrow \frac{A}{16\pi} = \frac{135}{360}$$

$$A = 6\pi \approx 18.8 \text{ m}^2$$

16. Find  $\widehat{AB}$



$$\frac{l}{2\pi r} = \frac{x}{360} \rightarrow \frac{l}{18\pi} = \frac{80}{360}$$

$$l = 4\pi \approx 12.6 \text{ ft}^2$$

17. Graph the polygon with vertices A (-5, -2), B (2, -5), C (3, 3), and D (3, -1). Then find the perimeter and area.

