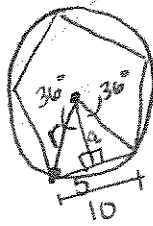


\*  
Just Circle

1. Find the area of a circle circumscribed about a regular pentagon with a perimeter of 50 inches. Round to the nearest tenth.



$$P = 50$$

$$\text{side} = 10$$

$$\frac{360}{5} = 72$$

\*Need radius

$$\sin 36 = \frac{5}{r}$$

$$r = \frac{5}{\sin 36}$$

$$r = 8.51$$

$$\text{Area} = \pi r^2$$

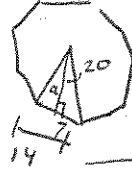
$$A = \pi (8.51)^2$$

$$A = 227.3 \text{ in}^2$$

2. Find the area of a regular nonagon with a perimeter of 126 inches. Round to the nearest tenth.

$$P = 126$$

$$\text{side} = 14$$



$$\frac{360}{9} = 40$$

$$\tan 20 = \frac{7}{a}$$

$$a = \frac{7}{\tan 20}$$

$$a \approx 19.232 \dots$$

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

$$= \frac{1}{2} (19.232 \dots) (126)$$

$$A = 1211.6 \text{ in}^2$$

3. Find the diameter of a circle with an area of 804.2 square centimeters.

$$A = \pi r^2$$

$$\frac{804.2}{\pi} = \frac{\pi r^2}{\pi}$$

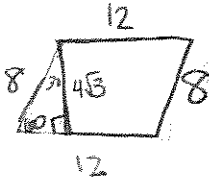
$$255.9848 = r^2$$

$$\sqrt{255.984} = \sqrt{r^2}$$

$$16 = r$$

diameter = 32 cm

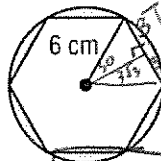
4. Find the area of a parallelogram with sides 8 and 12 and acute angle 60°.



$$\text{Area} = b \cdot h = 12(4\sqrt{3})$$

$$48\sqrt{3} \text{ u}^2$$

5. Find the area of the shaded region. Round to the nearest tenth.



$$A_{\text{circle}} - A_{\text{triangle}}$$

$$(\pi 6^2) - \left(\frac{1}{2}(6)(6)\right)$$

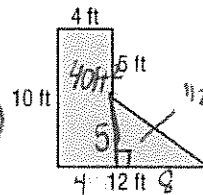
$$36\pi - 54\sqrt{3} \approx 19.6 \text{ cm}^2$$

$$\frac{360}{6} = 60$$

$$P = 6 \cdot 6 = 36$$

$$a = 3\sqrt{3}$$

6. Find the area of the figure.

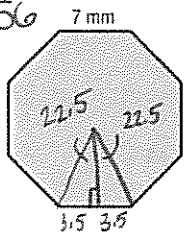


$$A = 40 + 20$$

$$60 \text{ ft}^2$$

$$\frac{1}{2}(4)(8) = 20 \text{ ft}^2$$

7. Find the area of the regular octagon. tenth



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

$$= \frac{1}{2} (8.44) (56)$$

$$A = 236.6 \text{ mm}^2$$

$$P = 7 \cdot 8 = 56$$

$$\frac{360}{8} = 45$$

$$\tan 22.5 = \frac{3.5}{a}$$

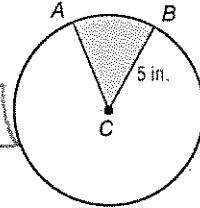
$$a = \frac{3.5}{\tan 22.5}$$

$$a \approx 8.4497 \dots$$

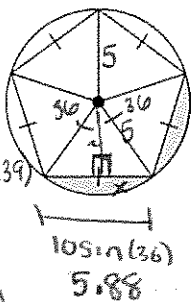
8. If  $m\angle ACB = 36$ , find the area of the shaded sector.

$$\left(\frac{36}{360}\right) \pi 5^2$$

$$2.5\pi \text{ in}^2$$



9. Find the area of the shaded segments.



$$A_{\text{circle}} - A_{\text{pent}}$$

$$\frac{25\pi - \frac{1}{2}(4.05)(29.39)}{5}$$

$$A = 3.82 \text{ u}^2$$

$$r = 5$$

$$\frac{360}{5} = 72$$

$$\sin 36 = \frac{x}{5}$$

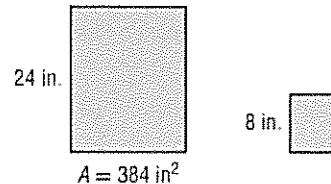
$$5 \sin(36) = x$$

$$\cos(36) = \frac{y}{5}$$

$$5 \cos(36) = y$$

$$5 \cos(36) = y \quad n = 4.05$$

10. Find the ratio of the perimeters and the ratio of the areas and perimeters of the similar rectangles.



Ratio of  
Perimeters = 3:1  
Ratio of  
Areas = 9:1

11. Find the area of the shaded region. Round to the nearest tenth.

$\frac{360}{3} = 120$

$A_{\Delta} - A_{\circ}$   
 $\frac{1}{2}ap - \pi r^2$   
 $\frac{1}{2}(4)(24\sqrt{3}) - \pi 4^2$   
 $48\sqrt{3} - 16\pi$   
 $32.9 \text{ m}^2$

12. Find the area of the figure. Round to the nearest tenth.

$\frac{1}{2}\pi(1.5)^2$   
 $1.125\pi$   
 $\frac{1}{2}(3)(3\sqrt{3})$   
 $4.5\sqrt{3}$   
 $A = 1.125\pi + 15 + 4.5\sqrt{3}$   
 $A \approx 10.7 \text{ u}^2$

13. A circular pizza has a diameter of 16 inches. Each slice of pizza has a central angle of  $45^\circ$ . What is the area of each slice of pizza?

$A = \left(\frac{45}{360}\right)\pi 8^2$   
 $A = 8\pi \text{ in}^2$

14. A running track consists of two parallel lines that are connected at each end by the curved boundary of a semicircle. The parallel lines are 30 meters long and 7 meters apart. Find the area inside the running track.

$A_{\square} + A_{\circ}$   
 $(30)(7) + \pi(3.5)^2$   
 $210 + 12.25\pi \approx 248.48 \text{ m}^2$

15. Jim is making a scale model of his rectangular backyard and circular pool. If the scale factor is 1:20, what is the area of his model?

$\text{Area} \approx 906.9 \text{ ft}^2$   
 $\left(\frac{1}{20}\right)^2 = \frac{x}{906.9}$   
 $\frac{1}{400} = \frac{x}{906.9}$   
 $x = 2.3 \text{ ft}^2$

16. Find the area of each figure. Round to the nearest tenth.

a.

$\frac{1}{2}\pi(1.5)^2$   
 $1.125\pi$   
 $\frac{1}{2}(7)(3)$   
 $\frac{9}{2}$

b.

$\frac{1}{2}\pi(1.5)^2$   
 $1.125\pi \text{ cm}^2$   
 $15 \text{ cm}^2$   
 $6.5 \text{ cm}$   
 $5.5 \text{ cm}$   
 $3 \text{ cm}$   
 $5$   
 $5^2 + x^2 = 5.5^2$   
 $x = 2.29..$   
 $A_{\Delta} = \frac{1}{2}(5)(2.29..)$   
 $A_{\Delta} = 5.728..$   
 $A = 1.125\pi + 15 + 5.728..$   
 $A \approx 24.3 \text{ cm}^2$

17. Determine the circumference of a circle if the area of that circle is  $8\pi$ .

$A = \pi r^2$   
 $8\pi = \pi r^2$   
 $\frac{8\pi}{\pi} = \frac{\pi r^2}{\pi}$   
 $\sqrt{8} = r$   
 $r = 2\sqrt{2}$   
 $C = 2\pi r$   
 $C = 2\pi(2\sqrt{2})$   
 $C = 4\sqrt{2}\pi$

18. In a circle with a radius of 8, a sector has an area of  $\frac{160\pi}{9}$ . Determine the degree measure of the arc of that sector.

$$\frac{160\pi}{9} = \frac{X}{360} \cdot \pi 8^2$$

$$\frac{360}{64\pi} \cdot \frac{160\pi}{9} = \frac{X \cdot 64\pi}{360} \cdot \frac{360}{64\pi}$$

$X = 100^\circ$

19. An equilateral triangle and a regular hexagon each have a perimeter of 18. Find the ratio of the area of the triangle to that of the hexagon. Simplify your ratio completely.

$A = \frac{1}{2}(6)(3\sqrt{3})$   
 $A = 9\sqrt{3}$

$\frac{18}{6} = 3$   
 $A = \frac{1}{2}(1.5\sqrt{3})(1.5)(6)$   
 $A = 13.5\sqrt{3}$

ratio =  $\frac{9\sqrt{3}}{13.5\sqrt{3}} = \frac{2}{3}$  \*

20. The area of square WXYZ is 36. Square ABCD is formed by joining the midpoints of the sides of WXYZ. Find the area and perimeter of ABCD.

$6\sqrt{2} = \frac{6}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{6\sqrt{2}}{2} = 3\sqrt{2}$

$P = 12\sqrt{2}$   
 $A = 18$

21. The area of a trapezoid is 44 square units. The height is 4 and one base is 3. Determine the length of the other base.

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

$$2 \times 44 = \frac{1}{2}(3 + b_2)4 \times 2$$

$$\frac{88}{4} = \frac{(3 + b_2)4}{4}$$

$$22 = 3 + b_2$$

$$-3 \quad -3$$


---


$$19 = b_2$$

22. An equilateral triangle has an area of  $9\sqrt{3}$ . Determine the length of a side.

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

$$9\sqrt{3} = \frac{s^2\sqrt{3}}{4}$$

$$36\sqrt{3} = s^2\sqrt{3}$$

$$s^2 = 36$$

$$s = 6$$

23. Find the area of a circle circumscribed about a regular octagon with a perimeter of 80 inches. Round to the nearest tenth.

\* Need radius

$P = 80$   
 $S = 10$

$$\sin 22.5 = \frac{5}{r}$$

$$r = \frac{5}{\sin 22.5} = 13.1$$

$$A = \pi r^2$$

$$A = \pi (13.1)^2$$

$A = 536.3 \text{ in}^2$

24. Find the area of a rhombus with a perimeter of 100 meters and one diagonal with a length of 48 meters

$$\frac{100}{4} = 25$$

$$24^2 + x^2 = 25^2$$

$$x^2 = 49$$

$$x = 7$$

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

$$= \frac{1}{2}(48)(14)$$

$A = 336 \text{ m}^2$

