

Name: _____

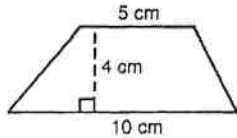
Trapezoid and Regular Polygon Area

Find the **AREA** of each Trapezoid.

Write the Trapezoid Formula here →

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

1.



$$b_1 = 10$$

$$b_2 = 5$$

$$h = 4$$

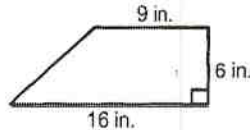
$$A = \frac{1}{2}(b_1 + b_2)h$$

$$\frac{1}{2}(5 + 10) \cdot 4$$

$$= \frac{1}{2} \cdot 50 \cdot 4$$

① Area = 100 cm²

2.



$$b_1 = 16$$

$$b_2 = 9$$

$$h = 6$$

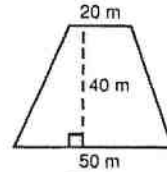
$$\frac{1}{2}(16 + 9) \cdot 6$$

$$\frac{1}{2}(25) \cdot 6$$

$$\frac{1}{2} 150$$

② Area = 75 in²

3.



$$b_1 = 20$$

$$b_2 = 50$$

$$h = 140$$

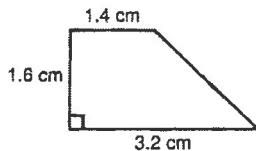
$$\frac{1}{2}(50 + 20) \cdot 140$$

$$\frac{1}{2}(70) \cdot 140$$

$$\frac{1}{2}(2800)$$

③ Area = 1400 m²

4.



$$b_1 = 1.4$$

$$b_2 = 3.2$$

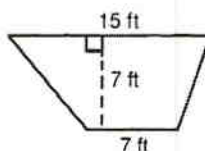
$$h = 1.6$$

$$\frac{1}{2}(1.4 + 3.2) \cdot 1.6$$

$$\frac{1}{2}(4.6) \cdot 1.6$$

④ Area = 3.68 cm²

5.



$$b_1 = 7$$

$$b_2 = 15$$

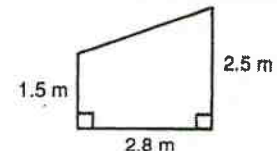
$$h = 7$$

$$\frac{1}{2}(15 + 7) \cdot 7$$

$$\frac{1}{2}(22) \cdot 7$$

⑤ Area = 77 ft²

6.



$$b_1 = 1.5$$

$$b_2 = 2.5$$

$$h = 2.8$$

$$\frac{1}{2}(1.5 + 2.5) \cdot 2.8$$

$$\frac{1}{2}(4) \cdot (2.8)$$

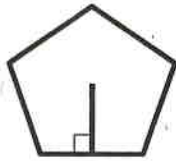
⑥ Area = 5.6 m²

Name: _____

Trapezoid and Regular Polygon Area

Find the **AREA** of each Regular Polygon.

1.



$$A \approx 55 \text{ cm}^2$$

$$s = 4 \text{ cm}$$

$$a = 5.5 \text{ cm}$$

$$A = \frac{1}{2}(4)(5.5)(5)$$

=

Write the Regular Polygon Area Formula here →

2.



$$A \approx 842.4 \text{ in}^2$$

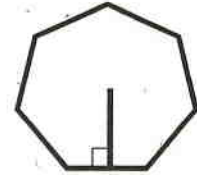
$$s = 18 \text{ in}$$

$$a = 15.6 \text{ in}$$

$$A = \frac{1}{2}(18)(15.6)(6)$$

$$A = \frac{1}{2} s a n \text{ or } \frac{1}{2} a P$$

3.



$$A \approx 2091.6$$

$$s = 24$$

$$a = 24.9$$

$$A = \frac{1}{2}(24)(24.9)(7)$$

=

4. Regular Pentagon:
 $a = 3 \text{ cm}$

$$s \approx 4.4 \text{ cm}$$

$$\text{Area} \approx 33 \text{ cm}^2$$

$$A = \frac{1}{2}(3)(4.4)(5)$$

=

5. Regular nonagon:
 $a = 9.6$

$$\text{Area} \approx 302.4 \text{ cm}^2$$

$$\text{Perimeter} = 63 \text{ cm}$$

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

$$302.4 = \frac{1}{2}(9.6)P$$

$$2 \cdot \frac{302.4}{9.6} = P$$

6. Regular n -gon:
 $a = 12 \text{ cm}$.

$$\text{Perimeter} = 81.6 \text{ cm}$$

$$\text{Area} \approx 489.6$$

$$n = \text{_____ (challenge!)}$$

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

$$A = \frac{1}{2}(12)(81.6)$$

$$A = 489.6$$

$$489.6 = \frac{1}{2}(12)n$$

$$P = sn \quad 489.6 = \frac{n \cdot n \cdot 12}{81.6}$$

$$81.6 = sn \quad \frac{(81.6)(489.6)}{12} = n^2$$

$$s = \frac{n}{81.6}$$

$$n =$$