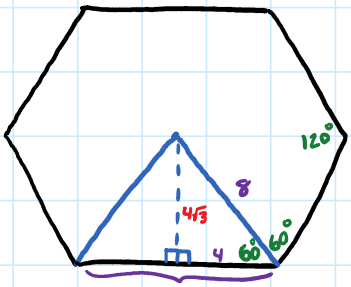
10.4 HW Solutions

Thursday, March 25, 2021 1:27 PM

1. Reg. hex. w/ apothem $4\sqrt{3}$ cm.

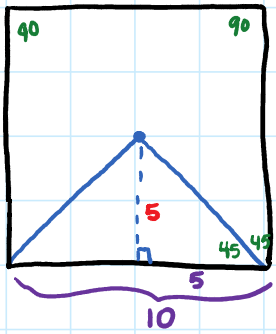


$\frac{(6-2)\cdot 180}{6} = 120$

$A = 6 \cdot \frac{1}{2}(8)(4\sqrt{3})$

$A = 96\sqrt{3}$ cm^2

2. Sq. w/ apothem 5in

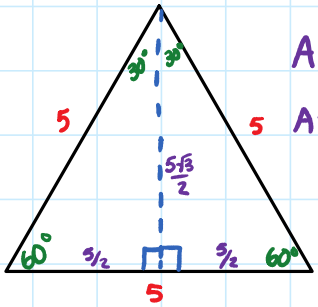


$A_{\square} = b \cdot h$

$A = 10 \cdot 10$

$A = 100$ in^2

3. Eq. Δ w/ perimeter 15ft

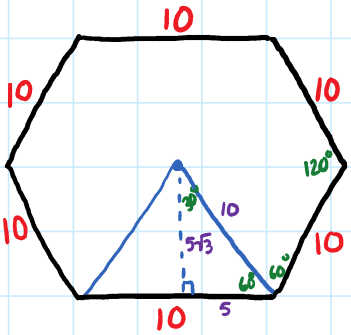


$A = \frac{1}{2} b \cdot h$

$A = \frac{1}{2} \cdot 5 \cdot \frac{5\sqrt{3}}{2}$

$A = \frac{25\sqrt{3}}{4}$ ft^2

4. Reg. hex. w/ perimeter 60mm

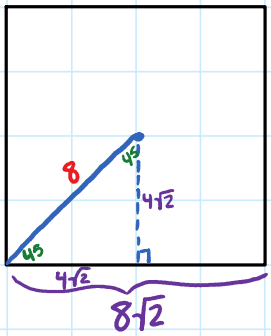


$A = 6 \cdot \frac{1}{2} bh$

$A = 6 \cdot \frac{1}{2} \cdot 10 \cdot 5\sqrt{3}$

$A = 150\sqrt{3}$ mm^2

5. Sq. w/ radius of 8cm

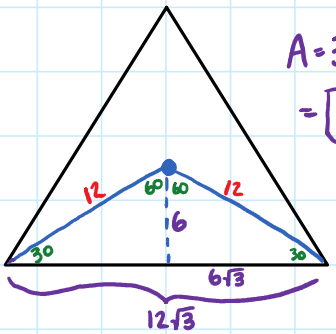


$A = 8\sqrt{2} \cdot 8\sqrt{2}$

$= 64 \cdot 2$

$= 128$ cm^2

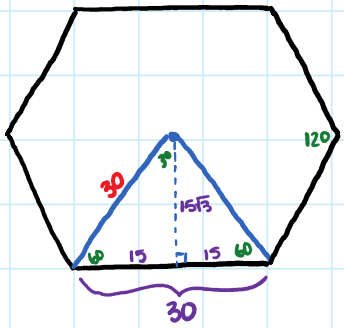
6. Eq. Δ w/ radius 12in



$A = 3 \cdot \frac{1}{2} \cdot 12\sqrt{3} \cdot 6$

$= 108\sqrt{3}$ in^2

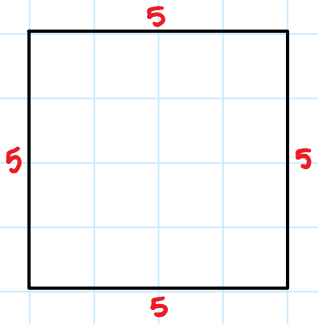
7. Reg. hex. w/ radius 30mm



$A = 6 \cdot \frac{1}{2} \cdot 30 \cdot 15\sqrt{3}$

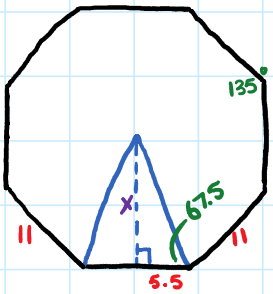
$= \boxed{1350\sqrt{3}\ mm^2}$

8. Sq. w/ perimeter of 20in



$A = 5 \cdot 5 = \boxed{25\ in^2}$

9. Reg. oct. w/ side length 11ft



$\angle = \frac{(8-2)\cdot 180}{8} = 135$

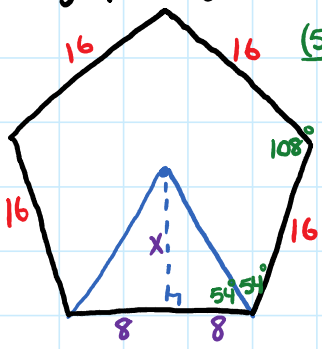
$\tan(67.5) = \frac{x}{5.5}$

$x = 13.278$

$A = 8 \cdot \frac{1}{2} \cdot 11 \cdot 13.278$

$A = \boxed{584.24\ ft^2}$

10. Reg. pentagon w/ perimeter 80in.



$\frac{(5-2)\cdot 180}{5} = 108°$

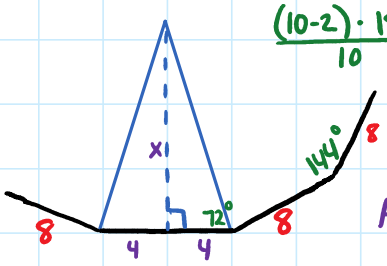
$\tan(54) = \frac{x}{8}$

$x = 11.011$

$A = 5 \cdot \frac{1}{2} \cdot 16 \cdot 11.011$

$A = \boxed{440.44\ in^2}$

11. Reg. decagon w/ perimeter 80 in.



$\frac{(10-2)\cdot 180}{10} = 144$

$\tan(72) = \frac{x}{4}$

$x = 12.311$

$A = 10 \cdot \frac{1}{2} \cdot 8 \cdot 12.311$

$A = \boxed{492.43\ in^2}$