

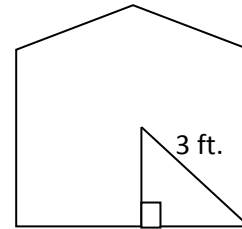
8.  $A = \frac{1}{2} P * a$

$1/2$  of one angle of a pentagon =  $1/2 (5 - 2) * 180/5 = 54$

To find the apothem:  $\sin (54) = a / 3$   $a = 2.4$

To find side of the pentagon:  $2\sqrt{3^2 - (2.4)^2} = 3.5$  so the perimeter is  $5 * 3.5 = 17.6$

$A = 1/2 * 17.6 * 2.4 = 21.4$  sq. ft.



18.  $A = 1/2 b c \sin A$                        $A = 1/2 * 24 * 11 * \sin 76$        $A = 128.1$  sq. mm.

24.  $A = \frac{1}{2} P * a$

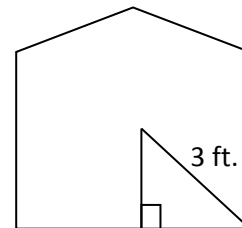
$1/2$  of one angle of a pentagon =  $1/2 (5 - 2) * 180/5 = 54$

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(This was the same as problem 24)



30.  $A = \frac{1}{2} P * a$

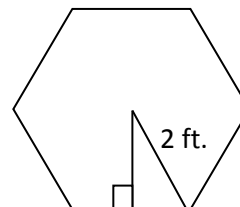
$1/2$  of one angle of a hexagon =  $1/2 (6 - 2) * 180/6 = 60$

Since this is a  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle, the apothem is across

from the  $60^\circ$  making it  $\sqrt{3}$ ; The side would also be 2, making

the perimeter  $6*2 = 12$ .

$A = 1/2 * 12 * \sqrt{3}$  so  $A = 6 \sqrt{3} = 10.39$  which is answer A.



34. This means that the perimeter of Decagon A is  $\frac{1}{10}$  the perimeter of Decagon B. If the perimeters are in the ratio of  $10 : 1$ , then the areas are in the ratio  $10^2 : 1^2$  which is  $100 : 1$ .

36. The apothem and the radius and  $\frac{1}{2}$  of a side of a square form a  $45^\circ$ - $45^\circ$ - $90^\circ$  triangle, making the apothem and  $\frac{1}{2}$  the side both  $2\sqrt{2}$ .

The area of the large square is  $(2 \cdot 2\sqrt{2})^2 = 32$

The area of the small square is  $(2\sqrt{2})^2 = 8$

The area of the shaded region would be the Large area minus the Small area:  $32 - 8 = 24$  sq. in.

42.  $180 - 36 - 82 = 62^\circ = m\angle E = m\angle I = 62^\circ$