April 7 Warm-Up

1. A rectangle has an area of 48 square feet
The height is 8 more than the base.
How long is the base? ____ Height?____

$A = bh$, $48 = b(b+8)$, $48 = b^2 + 8b$, $b^2 + 8b - 48 = 0$, $(b+12)(b-4) = 0$, $b = 4$, $h = 12$

2. A triangle has an area of 25 square inches.
Its height is 5 more than its base.
Base?____ Height?____

$A = 25$, $A = \frac{1}{2}bh$, $A = \frac{1}{2}b(b+5)$, $25 = \frac{1}{2}b(b+5)$, $50 = b^2 + 5b$, $b^2 + 5b - 50 = 0$, $(b+10)(b-5) = 0$, $b = 5$, $h = 10$

3. The area of a kite is 36 square meters.
One diagonal is half the other.
D1?____; D2?____

$A = \frac{1}{2}d_1d_2 = 36$, $\frac{1}{2}d \cdot d = 36$, $\frac{1}{2}d^2 = 36(2)$, $d^2 = 144$, $d = 12$, $d = 6$

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$x^2 - 5x - 36$

$(x+4)(x-9)$

-36

1 · 36
2 -18
3 -12
4 -9

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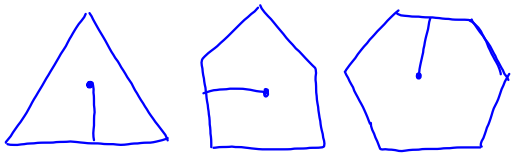
Area of a regular polygon is equal to 1/2ap

a represent the apothem-segment that starts at the center of the polygon and is perpendicular to the midpoint of the base

p represents the perimeter What is the area?



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example 1

Area?

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

$p = 14 + 14 + 14$
42

$A = \frac{1}{2} \cdot a \cdot 42$

$A = \frac{1}{2}(4) \cdot 42$

84 sq units

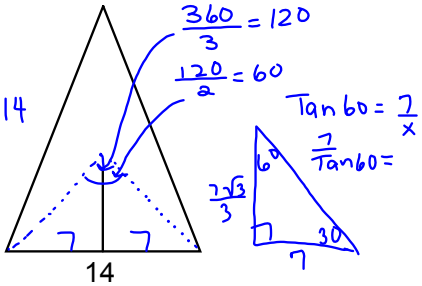
To find apothem 3 sides

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

$\frac{120}{2} = 60$

$\tan 60 = \frac{7}{x}$

$\frac{7}{\tan 60} =$



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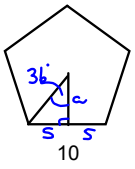
Example 2

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



5 sides

$\frac{360}{5} = \frac{72}{2} = 36$

$p = 50$

$A = \frac{1}{2} \cdot a \cdot 50$

$\tan 36 = \frac{5}{a}$

$\frac{5}{\tan 36} = a$

$6.9 = a$

$A = \frac{1}{2}(6.9)(50)$

$A = 172.5$ square units

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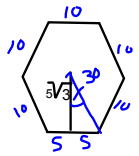
Example 3:

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



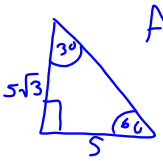
6 sides

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

$60 \div 2 = 30$

$P = 60$

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



$A = \frac{1}{2} \cdot 5\sqrt{3} \cdot 60$

$A = 30 \cdot 5\sqrt{3}$

$A = 150\sqrt{3}$

$A = 259.8$ sq units

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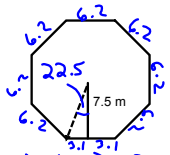
Example 4



$A = \frac{1}{2}(7.5)\,p$

area=1/2ap

a=7.5

360/8=45

45/2=22.5

A=1/2(7.5)(49.7)=186.4

tan22.5=x/7.5

7.5tan22.5=3.1

p=49.7

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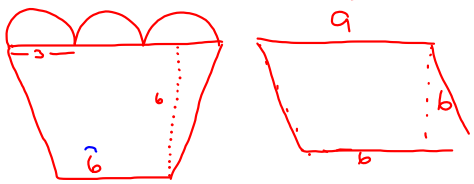
#17 Area?



$\triangle + \triangle + \triangle = 10.6$

$\odot\ \pi r^2$

$\pi(1.5)^2$

$\odot\ 7.1$

$\frac{3.5}{10.6}$

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

$\frac{1}{2}(6)(15)$

45

10.6 + 45 = 55.6 sq units

ΔΔΔ

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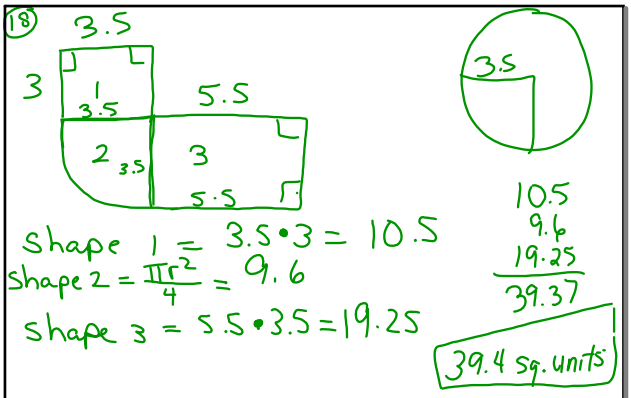

Shape 1 = 3.5 • 3 = 10.5

Shape 2 = $\frac{\pi r^2}{4}$ = 9.6

Shape 3 = 5.5 • 3.5 = 19.25

10.5
9.6
19.25
39.37

39.4 sq. units

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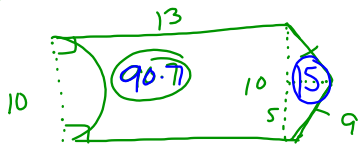

$\sqrt{9^2-5^2} =$

$\sqrt{81-25} = 7.48$

7.48 • 2 = 15

$= 10 \cdot 13 = 130$

130 − 39.3

90.7

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

$\frac{\pi 5^2}{2}$

39.3

90.7
15
105.7 sq units

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Area of shaded; must Subtract area of pentagon from area of circle.

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

$\frac{72}{2} = 36$

$\sin 36 = \frac{b}{10}$

$10 \sin 36 = b$

b = 5.9

5.9 x 2 =

11.8

11.8 x 5 side = p

59 = p

$\odot = \pi r^2$

$\odot = \pi 10^2 =$

$\odot = 314.2$

$\cos 36 = \frac{a}{10}$

$10 \cos 36 = a$

8.1 = a

$\odot - \pi = $ shaded

$\pi = \frac{1}{2}ap$

$\frac{1}{2}(8.1)(59)$

A = 239

314.2 − 239 = 75.9 sq units is shaded part

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360/6= 60˚ 60/2=30˚

area of the big circle=πr^2

$\pi\left(\frac{8\frac{1}{3}}{3}\right)^2 = 66.74$

area of hexagon= 1/2ap

1/2(4) 27.7=55.4

circle -hexagon= 66.74-55.4=11.34

11.34/2 = 5.8

Apr 7-7:37 AM

(24) Area Circle − Area Triangle

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

$\frac{1}{2} \cdot \frac{\sqrt{3}}{3} \cdot 6$

$\sqrt{3} = \triangle$

$r = \left(\frac{\sqrt{3}}{3}\right)2$

$r = 1.2$

$\odot = \pi(1.2)^2 = 4.2$

$4.2 - \sqrt{3}$

2.5 ft²

Apr 7-11:04 AM

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