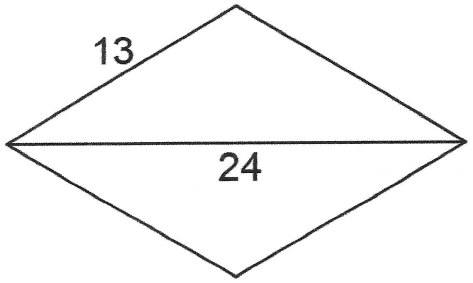
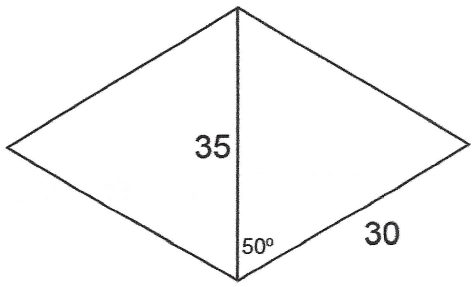
Practice #9 Geo Sec 10-2 Rhombus Thursday, March 26, 2020

Find the area of each Rhombus. Round to the nearest hundredth unless noted otherwise.

1.



2.

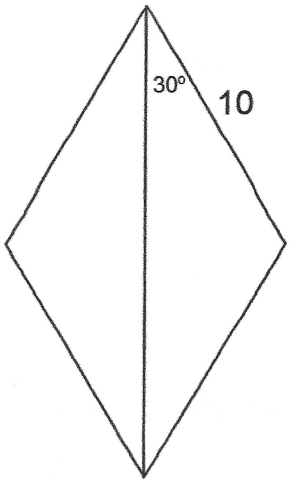


3. The perimeter is 100 and the measure of one of its angles is $68°$

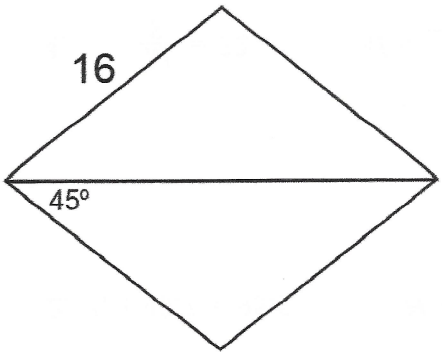
4. The coordinates of the vertices for Rhombus ABCD are: $A(5,8)$, $B(6,0)$ $C(-1,-4)$, and $D(-2,4)$

For 5 and 6 find the EXACT area.

5.



6.

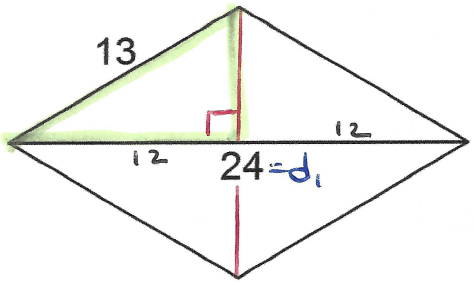


Practice #9 Geo Sec 10-2 Rhombus Thursday, March 26, 2020

Find the area of each Rhombus. Round to the nearest hundredth unless noted otherwise.

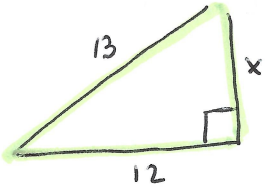
ANSWERS

1.



$A = \frac{1}{2}(24)(d_2)$

Now find d_2:



$x^2 + 12^2 = 13^2$

$x^2 = 13^2 - 12^2$

$x = \sqrt{13^2 - 12^2}$

$x = 5$

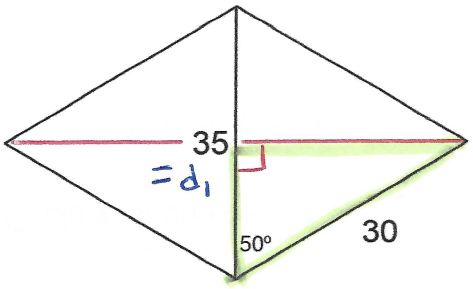
• THIS is 1/2 of d_2

$d_2 = 2(5) = 10$

$A = \frac{1}{2}(24)(10)$

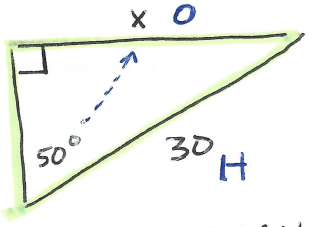
$A = 120$

2.



$A = \frac{1}{2}(35)(d_2)$

Now find d_2:



SOHCAHTOA

$\sin 50° = \frac{x}{30}$

$x = 30 \cdot \sin 50°$

$x = 22.98$

• THIS is 1/2 of d_2

$d_2 = 2(22.98)$

$= 45.96$

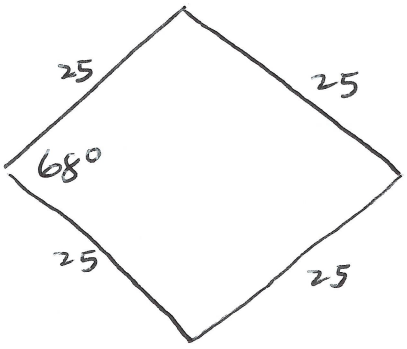
$A = \frac{1}{2}(35)(45.96)$

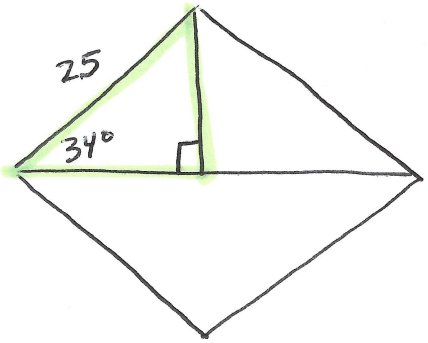
$A = 804.30$

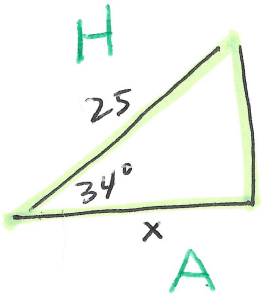
3. The perimeter is 100 and the measure of one of its angles is 68°

1 side = $\frac{100}{4}$

= 25







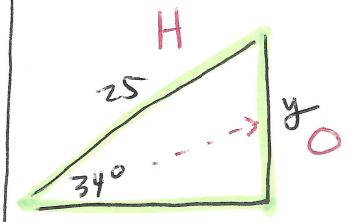
SOHCAHTOA

$\cos 34° = \frac{x}{25}$

$x = 25 \cdot \cos 34°$

$x = 20.73$ = ½ diag

whole diag = 2(20.73) = 41.46



SOHCAHTOA

$\sin 34° = \frac{y}{25}$

$y = 25 \cdot \sin 34°$

$y = 13.98$

= ½ of diag

whole diag

= 2(13.98)

= 27.96

$A = \frac{1}{2}(41.46)(27.96)$

$A = 579.61$

4. The coordinates of the vertices for Rhombus ABCD are: $A(5,8)$, $B(6,0)$ $C(-1,-4)$, and $D(-2,4)$

DIAGONALS ARE $\overline{AC}$ & $\overline{BD}$

Length of $\overline{AC}$:

$AC = \sqrt{(5--1)^2 + (8--4)^2}$

$AC = \sqrt{6^2 + 12^2}$

$AC = \sqrt{180}$

Length of $\overline{BD}$:

$BD = \sqrt{(6--2)^2 + (4-0)^2}$

$BD = \sqrt{8^2 + 4^2}$

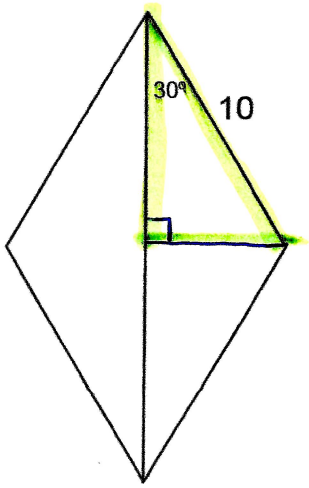
$BD = \sqrt{80}$

$A = \frac{1}{2}(\sqrt{180})(\sqrt{80})$

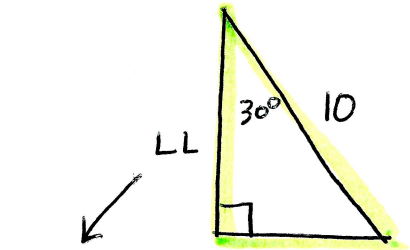
$A = 60$

For 5 and 6 find the EXACT area.

5.



$30°-60°-90°$ Δ



$LL = SL\sqrt{3}$

$= 5\sqrt{3}$

$SL = \frac{1}{2}hyp = \frac{1}{2}(10) = 5$

$SL = 1/2$ diag $\rightarrow$ whole diag $= 2 \cdot SL$

$= 2(5)$

$= 10$

$LL = 1/2$ diag $\rightarrow$ whole diag $= 2 \cdot LL$

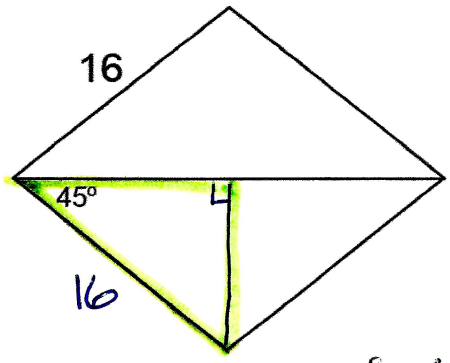
$= 2(5\sqrt{3})$

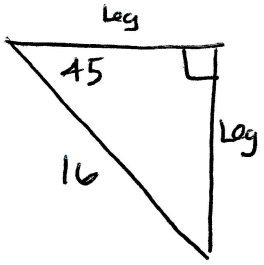
$= 10\sqrt{3}$

$A = \frac{1}{2}(10)(10\sqrt{3})$

$A = 50\sqrt{3}$

6.





$45°-45°-90°$ Δ

$Leg = \frac{hyp}{\sqrt{2}} = \frac{16}{\sqrt{2}}$

$= \frac{16}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$= \frac{16\sqrt{2}}{2}$

$= 8\sqrt{2}$

Leg are $\cong$ and both diagonals are Leg · 2 so diagonals are $\cong$

$diag = 2 \cdot Leg$

$= 2(8\sqrt{2})$

$= 16\sqrt{2}$

$A = \frac{1}{2}(16\sqrt{2})(16\sqrt{2})$

$= \frac{1}{2}(16 \cdot 16)(\sqrt{2})(\sqrt{2})$

$= 128 \cdot 2$

$A = 256$