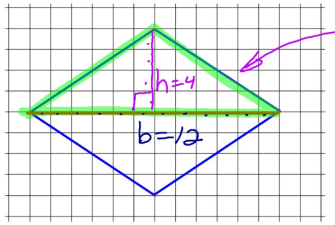
Thursday, March 26, 2020

Sec 10 - 2: Area of a Rhombus

Find the area of this Rhombus.



$\triangle$ $A = \frac{1}{2}(12)(4)$

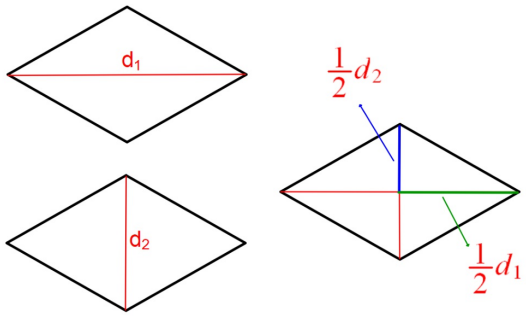
$A = 24$

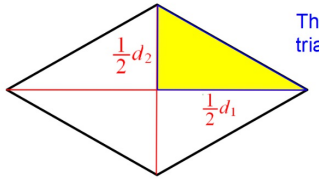
Area of Rhombus

$= 2\ \triangle$'s

$= 2(24)$

$A = 48$

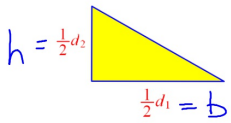




There are four of these triangles.

Area of the Rhombus is the area of four triangles.

Area of the Rhombus = 4•(area of 1 triangle)



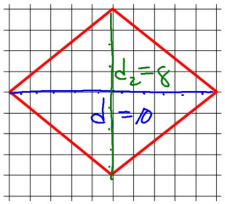
$A = 4 \cdot \frac{1}{2}bh$

$A = \cancel{4} \cdot \cancel{\frac{1}{2}}\left(\frac{1}{2}d_1\right)\left(\frac{1}{2}d_2\right)$

$A = \frac{1}{2}d_1d_2$ ← Area of a Rhombus

Find the area of each Rhombus.
Round to a tenth if needed.

1.

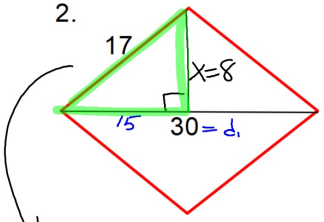


$A = \frac{1}{2}d_1d_2$

$= \frac{1}{2}(10)(8)$

$A = 40$

2.



$X^2 + 15^2 = 17^2$

$X^2 = 17^2 - 15^2$

$X = \sqrt{17^2 - 15^2}$

$X = 8$

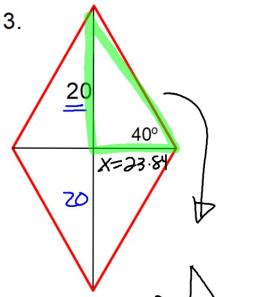
$A = \frac{1}{2}d_1d_2$

$= \frac{1}{2}(30)(16)$

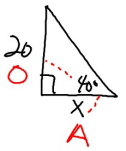
$2(8)$

$A = 240$

3.



SOHCAHTOA



$\tan 40° = \frac{20}{X}$

$X = 23.84$

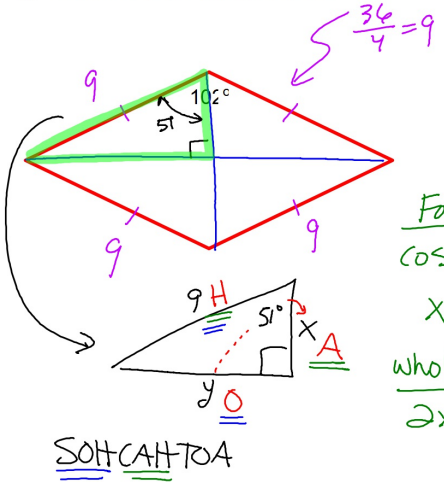
$A = \frac{1}{2}d_1d_2$

$= \frac{1}{2}(40)(47.68)$

$2(23.84)$

$A = 953.60$

4. Perimeter of this Rhombus is 36.



$\frac{36}{4} = 9$

SOHCAHTOA

$A = \frac{1}{2} d_1 d_2$

$A = \frac{1}{2}(11.32)(13.98)$

$A = 79.13$

For x

$\cos 51° = \frac{x}{9}$

$x = 5.66$

whole diag

$2x = 11.32$

For y

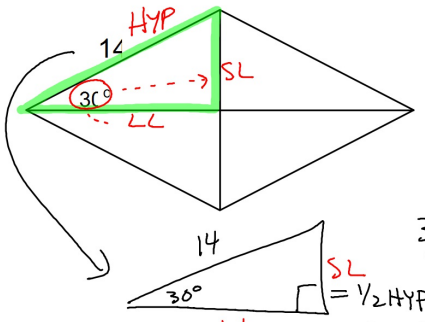
$\sin 51° = \frac{y}{9}$

$y = 6.99$

whole diag

$2y = 13.98$

5. Find the EXACT area of this Rhombus.
Give answer in simplified radical form.



$A = \frac{1}{2} d_1 d_2$

$A = \frac{1}{2}(14)(14\sqrt{3})$

$A = 98\sqrt{3}$

30-60-90

$SL = \frac{1}{2} HYP$

$= SL = 7 \rightarrow$ whole diag $= 2(SL)$

$= 14$

$= SL \cdot \sqrt{3}$

$LL = 7\sqrt{3} \Rightarrow$ whole diag $= 2(LL)$

$= 2(7\sqrt{3}) = 14\sqrt{3}$

You can now do Practice #9 which is posted on my blog.