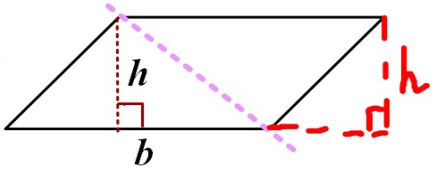
11-2 Areas of Parallelograms, Triangles and Rhombi

std. 10.0

March 5

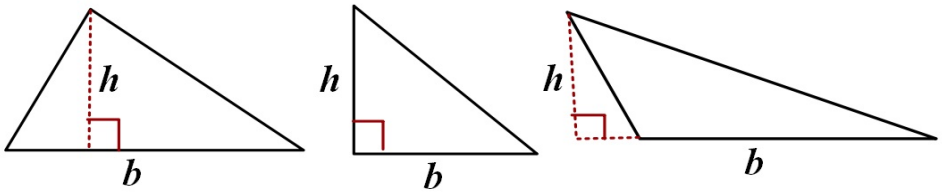
Parallelogram

$A = bh$



Triangle

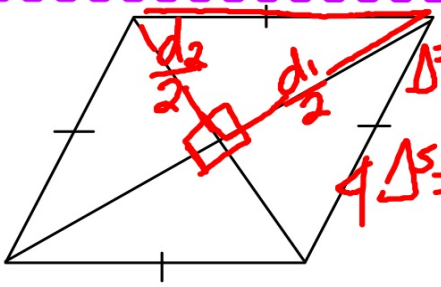
$A = \frac{1}{2}bh$



Rhombus

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

d_1 , d_2 are diagonals



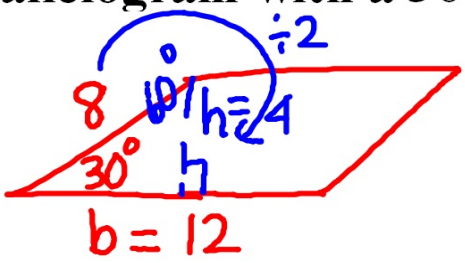
b h

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

$4A = 4\left(\frac{d_1 \cdot d_2}{8}\right)$

Examples: Find area.

1 **parallelogram with a 30° angle and sides 8 and 12**



$A = \underset{b}{12} \cdot \underset{h}{4} = 48\ u^2$

2 **triangle with sides 10 cm, 10 cm, and 8 cm**

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

$A = \frac{1}{2} 8 \cdot 2\sqrt{21}$

$8\sqrt{21}\ cm^2$

b = 8

$4^2 + h^2 = 10^2$

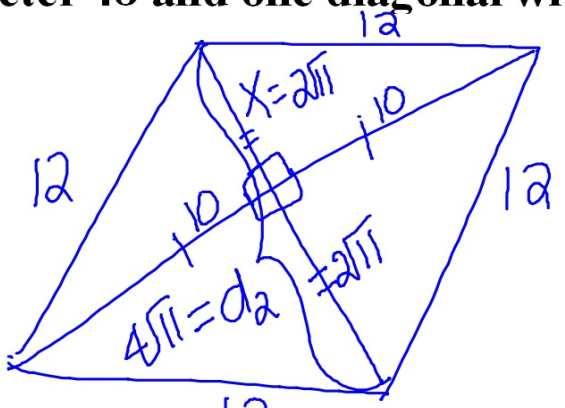
$16 + h^2 = 100$

$\sqrt{h^2} = \sqrt{84}$

$\sqrt{4}\sqrt{21} = 2\sqrt{21}$

3

rhombus with perimeter 48 and one diagonal with length 20



$12^2 = x^2 + 10^2$

$144 = x^2 + 100$

$\sqrt{44} = \sqrt{x^2}$

$\sqrt{4}\sqrt{11}$

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

$A = \frac{20 \cdot 4\sqrt{11}}{2}$

$40\sqrt{11}\ u^2$