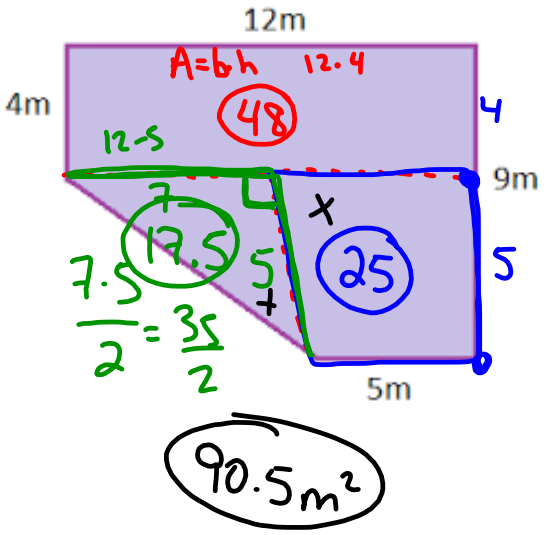
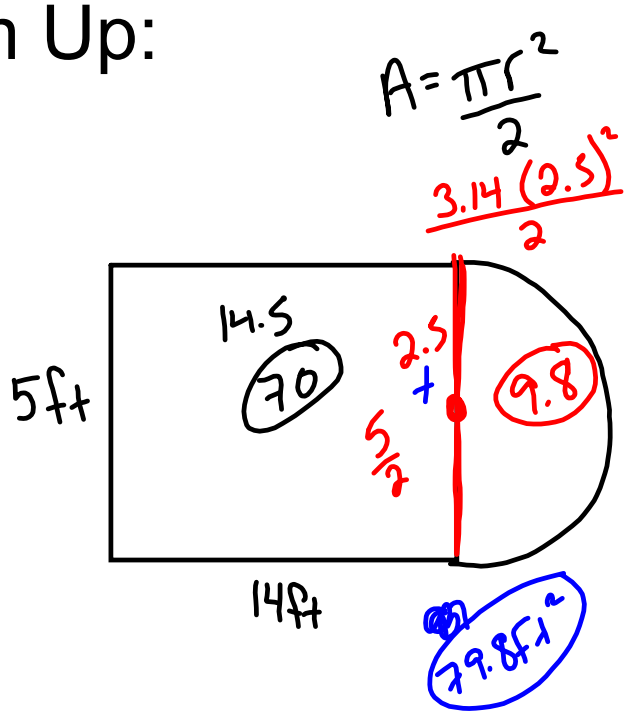
Warm Up:

Find the area of the shapes.





Learning Goal: Today I will learn how to find the area of a trapezoid, rhombus and kite.

Success Criteria: I am able to identify each piece required to find the area.

Burrito Books

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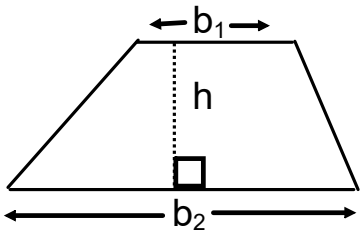
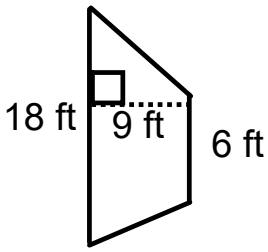


Example



Area of a Trapezoid

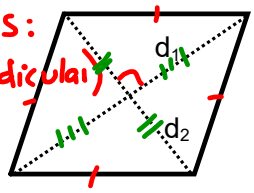
$$A = \frac{h(b_1 + b_2)}{2}$$

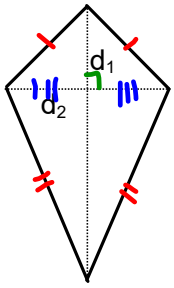
b_1 & b_2 - parallel side lengths

h - height (perpendicular to bases)

Example

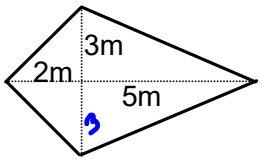
diagonals:
⊥ (perpendicular)
bisected





diagonals
⊥
shortest diagonal bisected

Example:



Area of a Rhombus

$$A = \frac{d1 \bullet d2}{2}$$

d_1 - length of one diagonal
d_2 - length of second diagonal

Area of a Kite

$$A = \frac{d1 \bullet d2}{2}$$

Example:

$d_1 = 7$
$d_2 = 6$

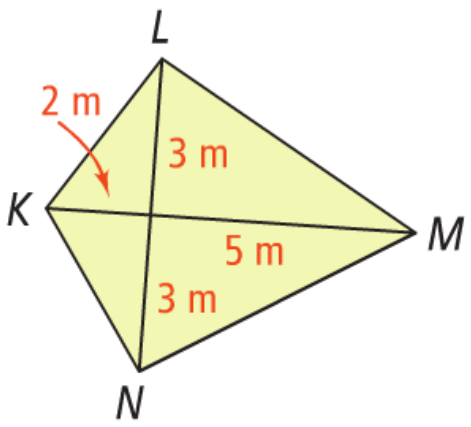
$\frac{7 \cdot 6}{2}$

$\frac{42}{2} = 21\ m^2$

10-2 Area of Trapezoids, Rhombuses and Kites

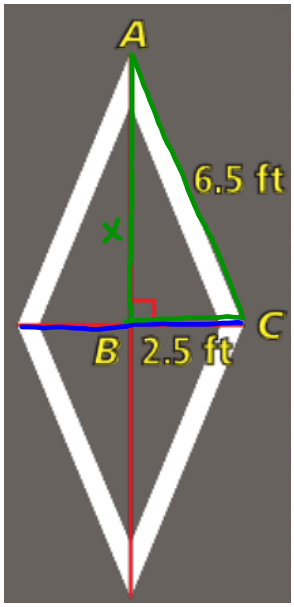
Example

Find the area of kite KLMN.



Example

Find the area of the rhombus.



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

$a^2 + b^2 = c^2$

$x^2 + 2.5^2 = 6.5^2$

$\vdots$

$x = 6$

$d_1 = 5$

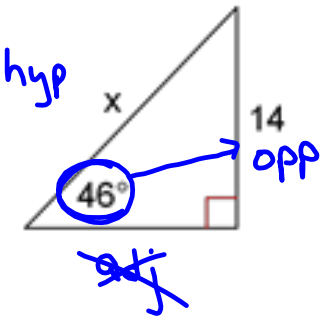
$d_2 = 12$

$A = \frac{5 \cdot 12}{2}$

$A = 30 ft^2$

Random Review... Trigonometry

SOH-CAH-TOA

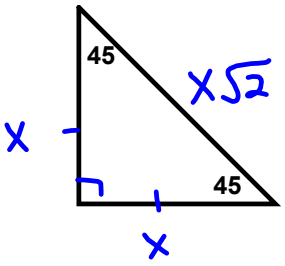


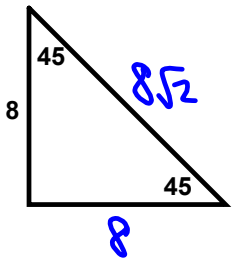
$x \cdot \sin 46 = \frac{14}{x} \cdot x$

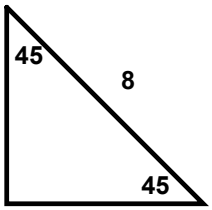
$\frac{x \sin 46}{\sin 46} = \frac{14}{\sin 46}$

$x = 19.4$

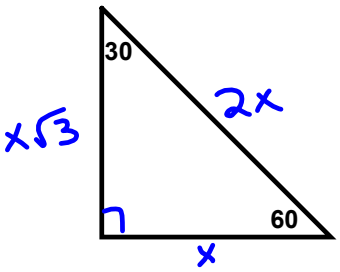
Random Review... 45-45-90 Triangle

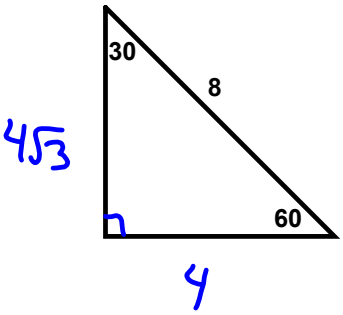


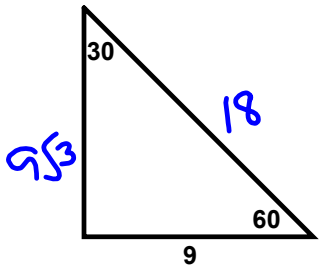




Random Review... 30-60-90 Triangle







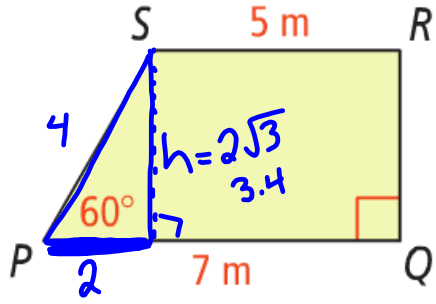
Example

Find the area of trapezoid PQRS.

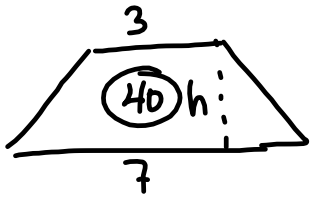
$A = \frac{h(b_1 + b_2)}{2}$

$A = \frac{3.4(5+7)}{2}$

$A = \frac{3.4(12)}{2} = \frac{40.8}{2} = 20.4\ m^2$



The area of a trapezoid is 40m². The bases are 3m and 7m. What is the height of the trapezoid?



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

$40 = \frac{h(3+7)}{2}$

$40 = \frac{h(10)}{2}$

$\frac{40}{5} = \frac{h \cdot 5}{5}$

$h = 8$

Closure: Today I learned how to find the area of a trapezoid, rhombus and kite.