Monday, March 23, 2020

Chapter 10: Area

Many formulas for the Area of a figure involve using the Base and the Height.

You need to always remember that base and height of a figure:

Must be perpendicular

Some basic area formulas of polygons:

Area of a Rectangle: $A = b \cdot h$

Area of a Square: $A = b \cdot h = s^2$ (since b & h are sides and all sides are ≅)

Area of a Parallelogram: $A = b \cdot h$

The area of a Triangle. $A = \frac{1}{2} b \cdot h$

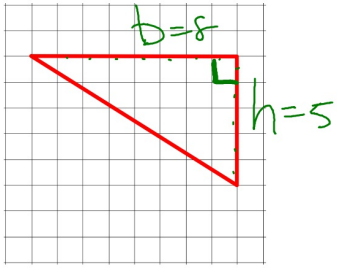
Area of a Trapezoid: $A = \frac{1}{2}(b_1 + b_2)h$

Since you are already familiar with the areas of rectangles and squares we'll start with the areas of triangles.

The area of a Triangle. $A = \frac{1}{2} b \cdot h$

Find the area of each triangle. Round to the nearest hundredth.

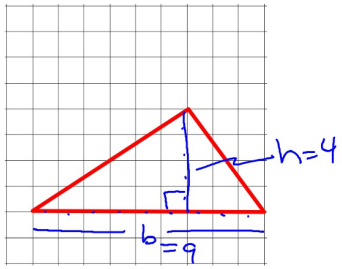
1.



$A = (8)(5)\ 1/2$

$A = 20$

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

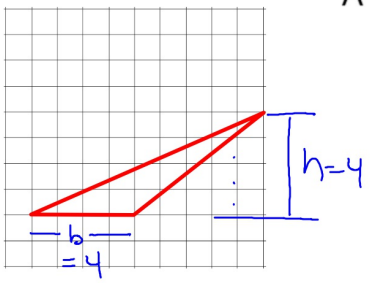


$A = 1/2(9)(4)$

$A = 1/2(36)$

$A = 18$

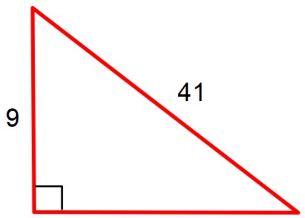
3. $A = \frac{1}{2} b \cdot h$



$A = 1/2(4)(4)$

$A = 8$

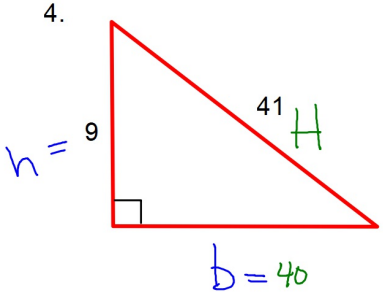
4.



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

See next page for answer

4.



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

$A = \frac{1}{2}(40)(9)$

$A = 180$

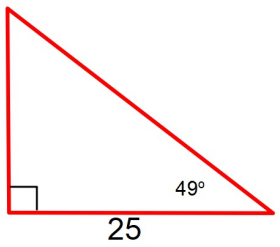
$41^2 = b^2 + 9^2$

$b^2 = 41^2 - 9^2$

$b = \sqrt{41^2 - 9^2}$

$b = 40$

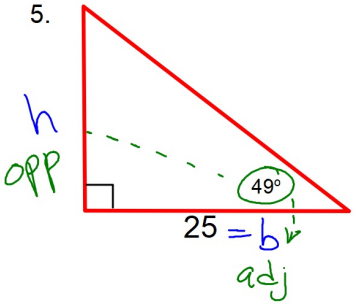
5.



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

See next page for answer

5.



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

SOHCAHTOA

$25 \cdot \tan 49° = \frac{h}{25} \cdot 25$

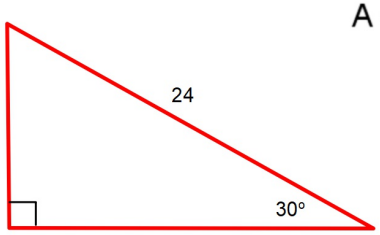
$h = 28.76$

$A = \frac{1}{2}(25)(28.76)$

$A = 359.50$

Find the EXACT area of this triangle.

6.

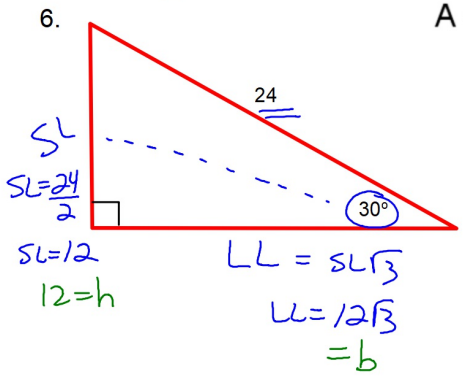


$A = \frac{1}{2} b \cdot h$

See next page for answer

Find the EXACT area of this triangle.

6. $A = \frac{1}{2} b \cdot h$

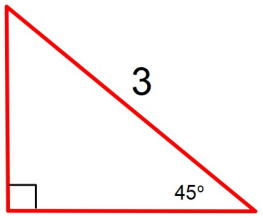


$A = \frac{1}{2}(12\sqrt{3})(12)$

$A = 72\sqrt{3}$

Find the EXACT area of this triangle.

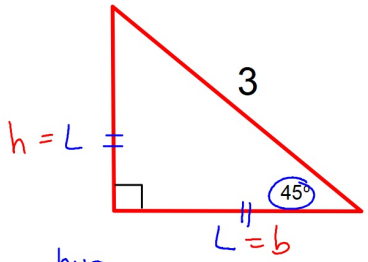
7. $A = \frac{1}{2} b \cdot h$



See next page for answer

Find the EXACT area of this triangle.

7. $A = \frac{1}{2} b \cdot h$



$Leg = \frac{hyp}{\sqrt{2}} = \frac{3}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{3\sqrt{2}}{2}$

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

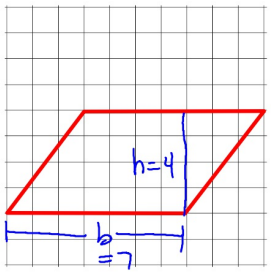
$= \frac{1}{2}\left(\frac{9 \cdot 2}{4}\right)$

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

Find the area of each parallelogram.
Round to the nearest hundredth.

Area of a Parallelogram: $A = b \cdot h$

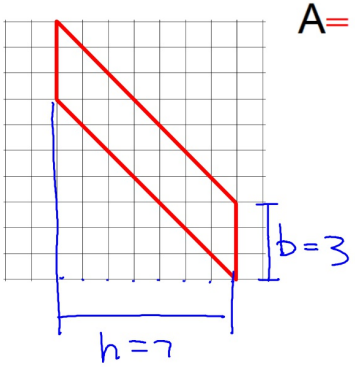
1.



$A = (7)(4)$

$A = 28$

2.



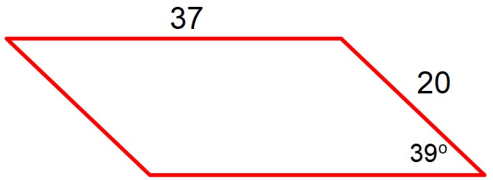
$A = b \cdot h$

$A = (3)(7)$

$A = 21$

3.

$A = b \cdot h$



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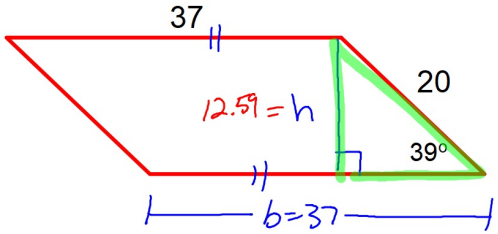
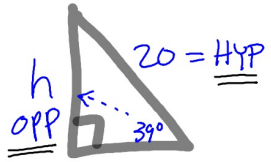
3.

$A = b \cdot h$





SOHCAHTOA

$20 \cdot \sin 39° = \frac{h}{20} \cdot 20$

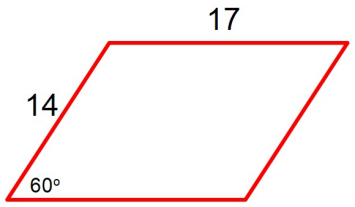
$h = 12.59$

$A = (37)(12.59)$

$A = 465.83$

4. Find the EXACT area of this parallelogram.

$A = b \cdot h$



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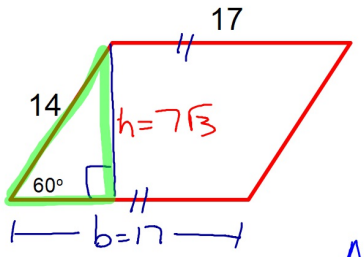
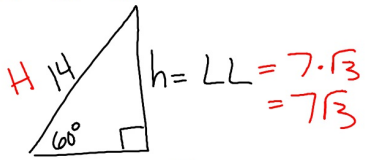
4. Find the EXACT area of this parallelogram.



$A = b \cdot h$



$SL = \frac{14}{2} = 7$

$A = (17)(7\sqrt{3})$

$\boxed{A = 119\sqrt{3}}$

You can now do Practice #6 which is posted on my blog.