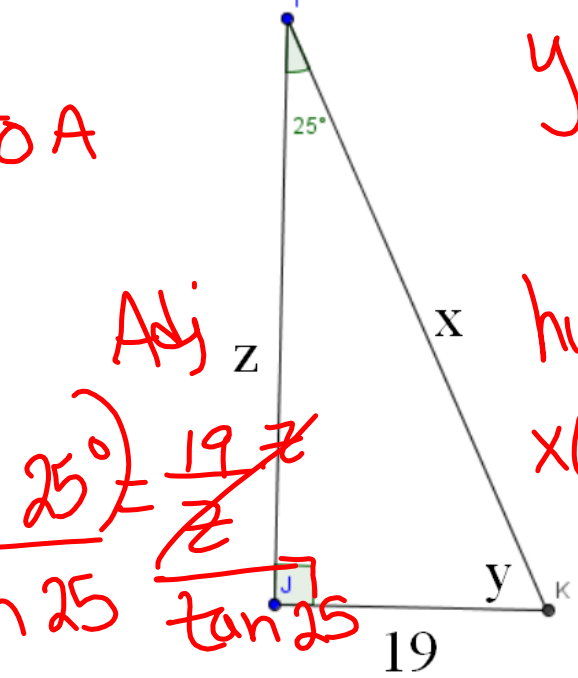
Geometry
13.2 Solving Right Triangles & 13.3 Find Area and Perimeter of Triangles using Trig

To "solve" a triangle means to solve for ALL 3 ANGLES and ALL 3 SIDES!

Now practice solving these right triangles...

Solve for x, y, and z.



SOH

$y = 90 - 25$

$\boxed{y = 65°}$

TOA

Adj z

hyp x

$\frac{z}{\tan 25°} = \frac{19}{\tan 25}$

$z = \tan 25° \cdot \frac{19}{\tan 25}$

$\boxed{z = 40.7}$

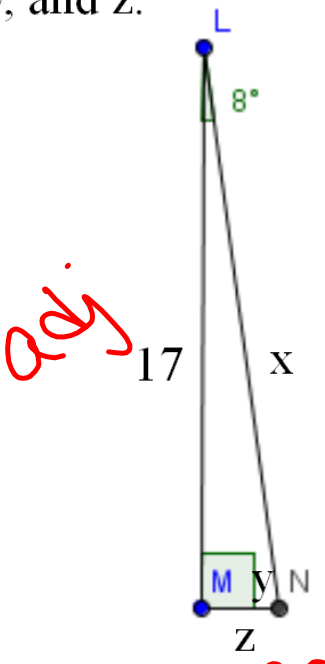
Opp 19

$x(\sin 25°) = \frac{19}{\sin 25}$

$x = \frac{19}{\sin 25} \cdot \frac{1}{\sin 25}$

$\boxed{x = 45.0}$

Solve for x, y, and z.



$y = 90 - 8$

$y = 82°$

adj

17 x hyp

$x(\cos 8°) = 17$

$\frac{x(\cos 8°)}{\cos 8} = \frac{17}{\cos 8}$

$x = 17.2$

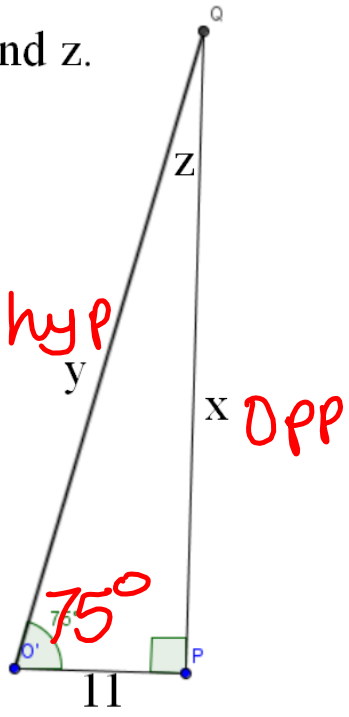
opp

$17 \cdot \tan 8° = z$

$z = 2.4$

Try This:

Solve for x, y, and z.



$z = 15°$

$x = 41.1$

$y = 42.5$

hyp

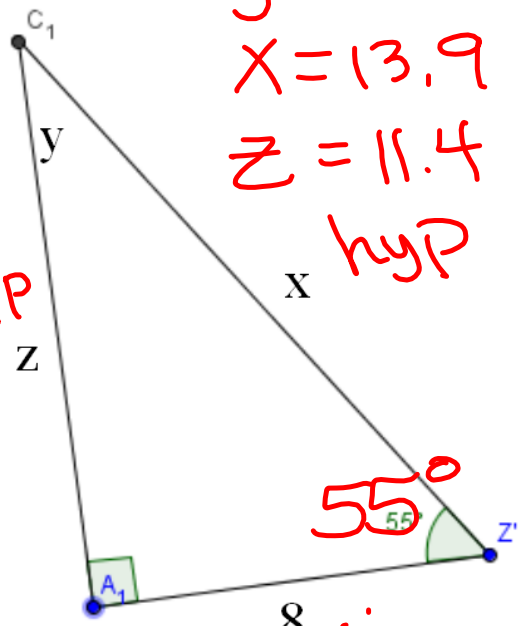
opp

$\tan 75 = \frac{x}{11}$

$\cos 75 = \frac{11}{y}$

adj

Solve for x, y, and z.



$y = 35°$

$x = 13.9$

$z = 11.4$

hyp

opp

adj

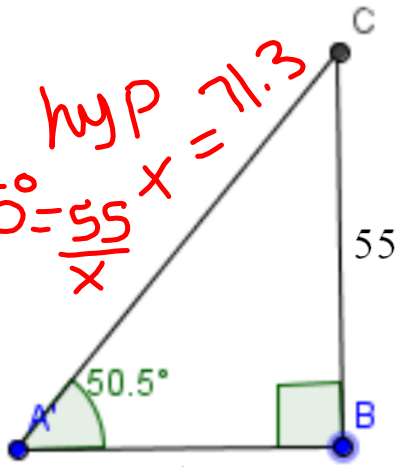
$\cos 55 = \frac{8}{x}$

$\tan 55 = \frac{z}{8}$

To find the Perimeter:

- solve for the missing sides
- add up all the sides

Find the perimeter of the triangle.



hyp $x = 71.3$

$\sin 50.5° = \frac{55}{x}$ opp

$\tan 50.5° = \frac{55}{y}$ adj $y = 45.3$

$P = 55 + 71.3 + 45.3 =$

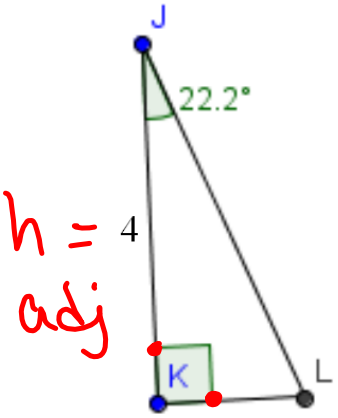
$P = 171.6$

To find the Area:

- solve for the base and the height if necessary
- take base times height and divide by 2

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

Find the area of the triangle.



$h = 4$ adj

$b = 1.6$ opp

$\tan 22.2° = \frac{b}{4}$

$A = \frac{1.6(4)}{2}$

$A = 3.2 \text{ units}^2$

Homework

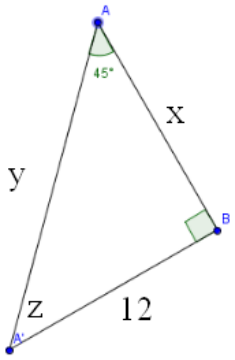
Worksheet

Geometry
13.2 Solving Right Triangles

Name: _____ Date: _____ Hour: __

solve the triangle. (Solve for x, y, & z)
Round to the nearest hundredths place.

1.



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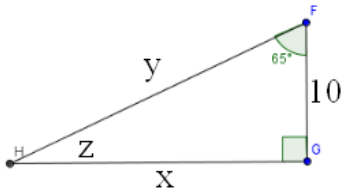

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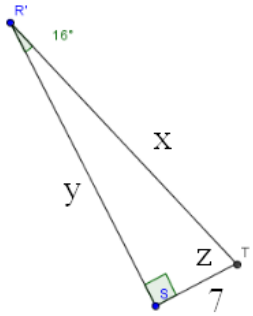

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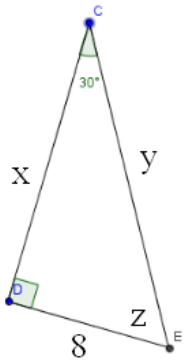

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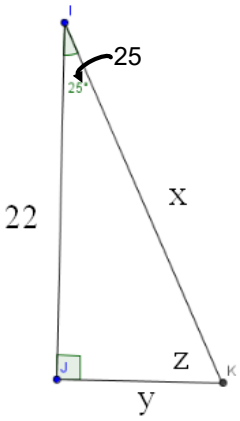

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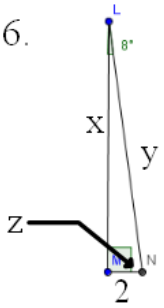

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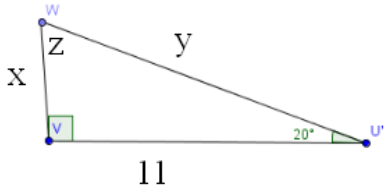

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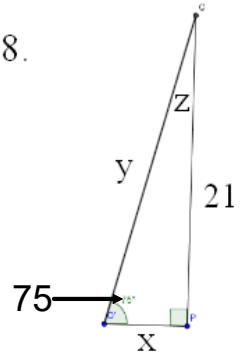

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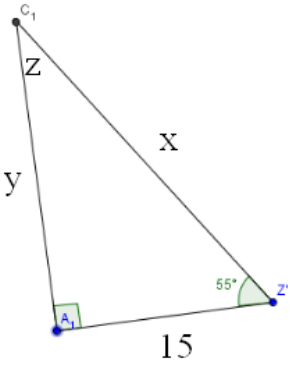

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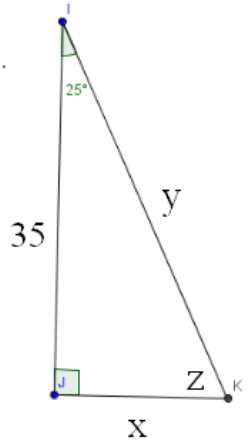

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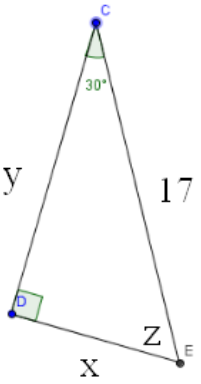

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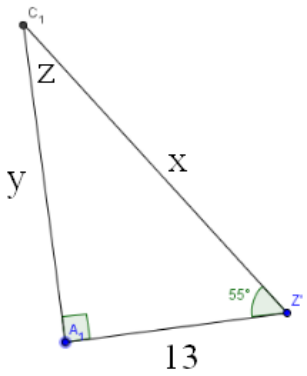

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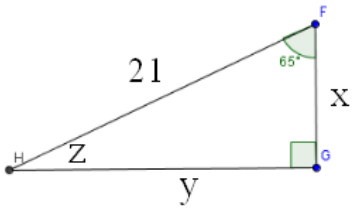

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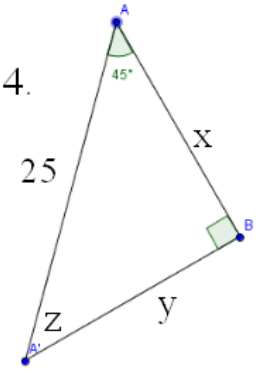

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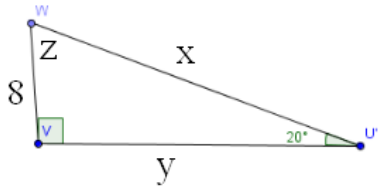

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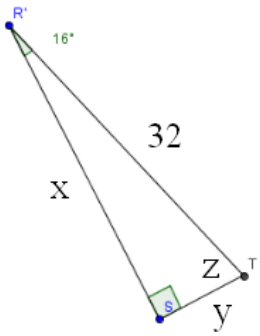

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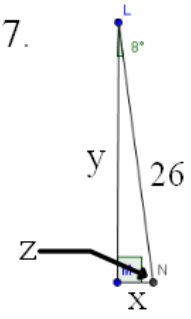

18.