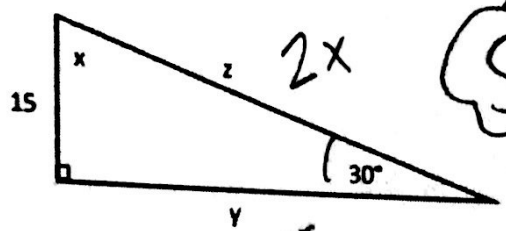
Honors Math 2
Unit 5: Right Triangles

Name: _____

Day 5: Solving Right Triangles

Solve for all of the missing sides and angles of the following right triangles.

1.



2x

$x\sqrt{3}$

Special Right!

$\sin(30) = \frac{15}{z}$

$z = 30$

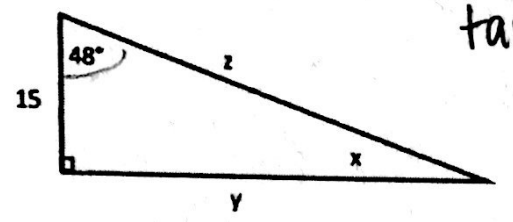
$\tan(30) = \frac{15}{y}$

$y = 25.98$

same thing

x = 60
y = $15\sqrt{3}$
z = 30

2.



$\tan(48) = \frac{y}{15}$

$y = 16.66$

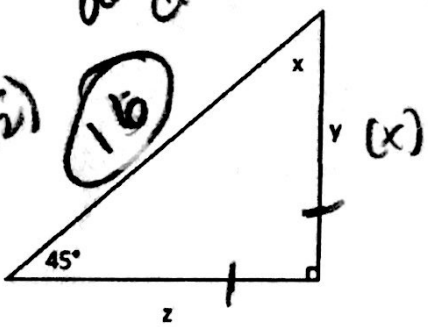
$\cos(48) = \frac{15}{z}$

$z = 22.42$

x = 42
y = 16.666
z = 22.42

3.

added in class.



$(x\sqrt{2})$ 16 (x)

(x)

Special Right!

$\frac{16}{\sqrt{2}} = \frac{x\sqrt{2}}{\sqrt{2}}$

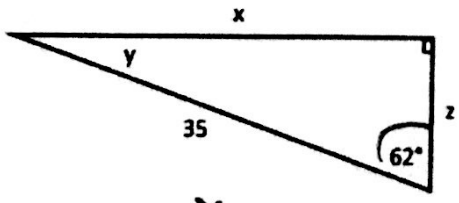
$x = \frac{16}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = (8\sqrt{2})$

$\cos(45) = \frac{z}{16}$

$\sin(45) = y/16$

x = 45
y = $8\sqrt{2}$ same
z = 11.314

4.



$\sin(62) = \frac{x}{35}$

$\cos(62) = \frac{z}{35}$

x = 30.9
y = 28
z = 16.43

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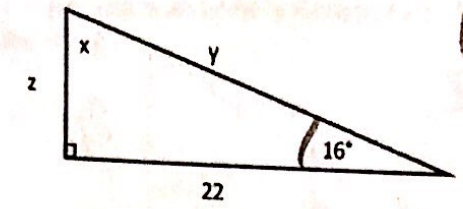
5.



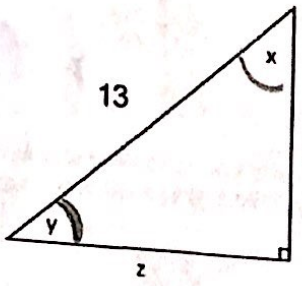
$\cos(16) = \frac{22}{y}$

$y = 22.89$

$\tan(16) = \frac{z}{22}$

x = 74
y = 22.89
z = 6.31

6.



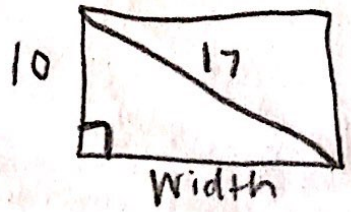
$\sin(y) = \frac{9}{13}$ | $\cos(x) = \frac{9}{13}$

$y = \sin^{-1}(9/13)$ | $x = \cos^{-1}(9/13)$

$\sin(46.19) = \frac{z}{13}$

x = 46.19
y = 43.81
z = 9.38

7. Your family wants to purchase a new laptop with a 17" widescreen. Since the 17 inches represents the diagonal measurement of the screen (upper corner to lower corner), you want to find out the actual dimensions of the laptop. When you measured the laptop at the store, the height was 10 inches, but you don't remember the width. Calculate and describe how you could figure out the width of the laptop to the nearest tenth inch.



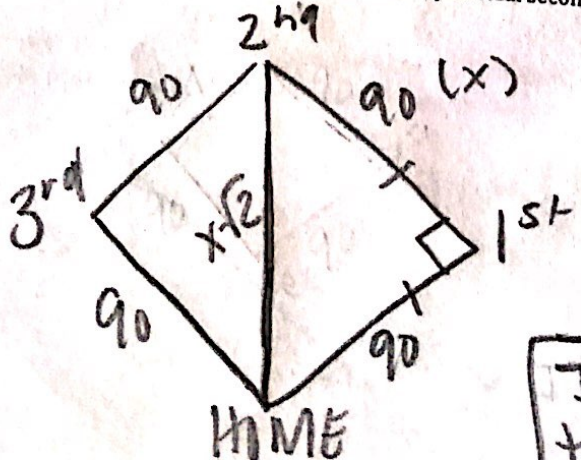
Pythagorean Thm

$17^2 = 10^2 + w^2$

$w = \sqrt{17^2 - 10^2} = 13.7$

Width = 13.7

8. A baseball "diamond" is actually a square with sides of 90 feet. If a runner tries to steal second base, how far must the catcher, at home plate, throw to get the runner "out"? State your answer in decimal form. Given this information, explain why runners more often try to steal second base than third.



Special Right

$x\sqrt{2} = 90\sqrt{2}$

$90\sqrt{2} = 127.28$ ft

It is a further throw to 2nd then 3rd ∴ easier to steal. (90 ft to 3rd)