COPY INTO YOUR NOTES + RETURN

Try: Find the geometric mean of 15 & 20

$\frac{15}{x} = \frac{x}{20}$

$x^2 = 300$

$x = \sqrt{300}$ → $\sqrt{100}$ → 10, $\sqrt{3}$

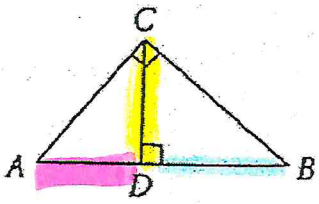
$x = 10\sqrt{3}$

or

300
2 150
2 75
3 25
5 5

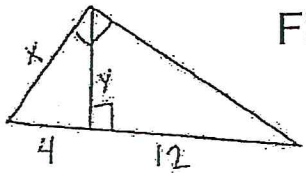
Corollary

The length of the altitude to the hypotenuse of a right triangle is the geometric mean of the lengths of the segments (pieces) of the hypotenuse. (Please see blog for color coding hints)



$\frac{AD}{CD} = \frac{CD}{DB}$ $\left(\frac{\text{hypot piece 1}}{\text{altitude}} = \frac{\text{altitude}}{\text{hypot piece 2}}\right)$

Example 2



Find the value of x and y.

y is the altitude's length

$\frac{4}{y} = \frac{y}{12}$

$y^2 = 48$

$y = \sqrt{48}$ → $\sqrt{16}$, $\sqrt{3}$

$y = 4\sqrt{3}$

For now, can solve for x using $a^2 + b^2 = c^2$

$4^2 + (4\sqrt{3})^2 = x^2$

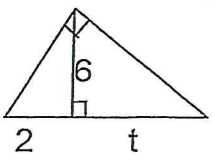
$16 + 48 = x^2$

$x^2 = 64$

$x = 8$

Example 3

(Sometimes the altitude is known)



Find the value of t

$\frac{2}{6} = \frac{6}{t}$

$2t = 36$

$t = 18$

Now, do, on p. 394
9-16, 19-23, 26-33
(put on Fri's hw pg w/ 1-8)