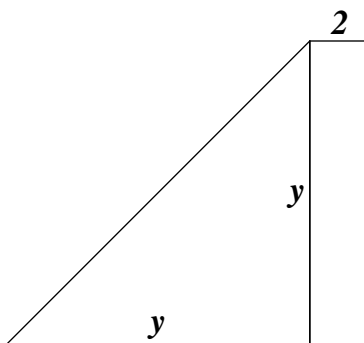


Mon Sep 17 09:55:49 MDT 2007

/m143.fa07/handouts143/q917/q917_143

These are alleged answers. For each error herein, you get extra-credit points for being the first to report it by e-mail.

1 In the figure,



the triangle area, in terms of y , is given by $\frac{1}{2}y^2$, while the rectangle area is given by $2y$. This yields the total-area equation

$$\frac{1}{2}y^2 + 2y = 48.$$

Multiplying through by 2 :

$$y^2 + 4y = 96$$

or

$$y^2 + 4y - 96 = 0.$$

Since $b^2 - 4ac = 20^2$, we can factor the left-hand side:

$$(y - 8)(y + 12) = 0,$$

which gives us $y = 8$ and $y = -12$ as roots of the quadratic equation, and $y = 8$ as the value for the y in our geometry problem. Thus, the side labeled y is **8 feet** long.