Quiz #2   Name: _____Key_____

You must show your work to get full credit.

1. Assume that $y = f(x)$ is a function of $x > 0$ such that when the input, x, is doubled, then the output, y, is doubled, and when the input is tripled the output is tripled. Assume that $f(5) = 16$.

(a) Find a formula for y in terms of x. $y =$ ___$y = 3.2x$___

This implies $y = cx$
for a constant c.
when $x = 5$, $y = 16$ so
$16 = 5c$
$c = \frac{16}{5} = 3.2$

(b) If $x = 27$, what is the value of y. $f(27) =$ ___86.4___

$f(27) = 3.2(27) = 86.4$

2. If a 5 foot palmetto weights 45 pounds, estimate the weight of a 15 foot palmetto tree.

Weight is proportional
to the cube of   Estimated weight is ___1215 lbs___
height. so

$w = ch^3$ ($w =$ weight, $h =$ height)
when $h = 5$, $w = 45$
so $45 = c(5)^3$
$c = \frac{45}{5^3} = .36$
$w = .36h^3$
Thus when $h = 15$ we set
$w = .36(15)^3 = 1215$