Quiz #1   Name: _____ Key

You must show your work to get full credit.

Assume that the weight, w, of a bass is proportional to the cube of its length, L. In Texas the average weight of a 12 inch bass is .87 pounds.[1]

1. Give a formula for w in terms of L.

Because w is proportional to L^3 we have

$w = cL^3$ for some

constant c. To find c use that $w = .87$ when $L = 12$. So

$$.87 = c(12)^3$$

$$c = \frac{.87}{(12)^3} = .0005035$$

$w =$ ___.0005035 L^3___

2. Use your formula to predict the weight of an 18 inch bass.

Just plug $L = 18$ into the formula above.

$$w = (.0005035)(18)^3 = 2.94$$

Predicted weight is ___2.94___

According to the web page cited in the footnote the weight of an 18 inch bass is 3.31 pounds, with is larger than our predicted value of 2.94 pounds. The reason is that the girth of a bass grows at faster rate than its length, that is it gets fatter as it gets older.

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[1]This is according to the web site
http://www.tpwd.state.tx.us/fishboat/fish/recreational/catchrelease/bass_length_weight.phtml