Math 157 - Quiz 1

August 24, 2016

Name __key__

Score _____

Show all work to receive full credit. Supply explanations when necessary. YOU MUST WORK INDIVIDUALLY.

1. (4 points) In predicting the future value of a stock, a financial adviser used the formula

$$V(t) = 0.08t + 34.17,$$

where $V(t)$ represents the value of the stock in dollars t days from today.

(a) Is the value of the stock <u>increasing</u> or decreasing? How do you know?

V IS AN INCREASING FUNCTION. IT IS A LINEAR FUNCTION WITH POSITIVE SLOPE $(m = 0.08)$

(b) About how much will the stock be worth in 8 days?

$V(8) = 0.08(8) + 34.17 = 34.81$ \$34.81

(c) After how many days will the stock be worth \$50?

$0.08t + 34.17 = 50$ → $t = 197.875$

$0.08t = 15.83$ AFTER ABOUT 198 DAYS

2. (3 points) A collectible vinyl record album was worth \$10.99 in 1980 and \$76.35 in 2016. Assume that its value can be described by a linear function. Find a formula for the value of the record album as a function of time (in years). Then use your formula to estimate the record's value in 2000.

$t = 0, \quad V = 10.99$

$t = 36, \quad V = 76.35$ } SLOPE $= \dfrac{76.35 - 10.99}{36} = \dfrac{65.36}{36} = 1.81\overline{5}$

≈ 1.8156

$V(t) = 1.8156t + 10.99$

IN 2000, $t = 20$ & $V(20) = 1.8156(20) + 10.99$

$\approx$ \$47.30

3. (3 points) Without graphing, determine whether the table describes a linear function.

x	1	2	4	8	13
y	10	13	19	32	46

$m = \dfrac{3}{1} = 3 \qquad m = \dfrac{6}{2} = 3 \qquad m = \dfrac{13}{4} \neq 3$

FUNCTION IS NOT LINEAR