MATH 113: College Algebra with Applications Name:

QUIZ 14

This quiz covers section 4.5, 5.1, 5.2, 6.1.

Exercise 1: The radioactive isotope carbon has a half-life of 5730 years. After 10,000 years, 2.4 grams remain. Determine the initial amount of carbon that was present. (3 points)

Exercise 2: Determine if the ordered triple (5,-3,-2) is a solution of the system

$$\begin{cases} x + y + z = 0 \\ x + 2y - 3z = 5 \\ 3x + 4y + 2z = -1 \end{cases}$$

(2 points)

Exercise 3: Write the augmented matrix for the system of linear equations: $\begin{cases} x - y + z = 8 \\ y - 12z = -15 \\ z = 1 \end{cases}$ (2 points)

Exercise 4: A company that manufactures bicycles has a fixed cost of $100,000. It costs $100 to produce each bicycle. The selling price $300 per bike.

Write the cost function, C.

Write the revenue function, R

Determine the break-even point. Describe what this means.

(In solving this exercise, let x represent the number of bicycles produced and sold.) (3 points)