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

\[
\begin{align*}
    x + y + z &= 0 \\
    x + 2y - 3z &= 5 \\
    3x + 4y + 2z &= -1
\end{align*}
\]

(2 points)

Exercise 3: Write the augmented matrix for the system of linear equations:

\[
\begin{align*}
    x - y + z &= 8 \\
    y - 12z &= -15 \\
    z &= 1
\end{align*}
\]

(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)