Math 162
Quiz 3
Form A

Show all work in a neat and organized fashion. Clearly indicate your answers.
10 points possible.

Units, Units, Units! Label all numeric answers. With models, give a concise explanation of the variables.

Example: Suppose a problem asks for a model, and suppose this is the answer:

$$Tax = 2538.90 + 540.37t \text{ dollars, where } t \text{ is the number of years since 1989.}$$

To receive full credit, this answer must include **all** of the following:
(1) the correct model (i.e., $Tax = 2538.90 + 540.37t$),
(2) the correct label for the output (i.e., "dollars"), and
(3) the correct explanation of the input variable (i.e., "where t is the number of years since 1989").

Example: Here is another correct way to write the same answer.

$D = 2538.90 + 540.37x$, where $D =$ dollars of tax, and $x =$ number of years since 1989.

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1. (2 pts.) The total payroll for all city governments in the United States during a certain month can be modeled by

$$\text{Payroll } = 485.2x + 5739.1 \text{ million dollars}$$

where x is the number of years since 1990. What is the rate of change of the payroll amount? Include correct units.

2. (5 pts.) The price of an appliance is given in the table below.

Year	Price (dollars)
1977	85
1979	92
1981	108
1983	126
1985	135
1987	159
1989	161
1991	187

(a) Find a linear model for the price of the appliance. Do not round.

(b) Use the model to predict the price in 1986. Round your answer.

(c) Suppose the linear increase continues, and use the model to predict when the price will be \$300. Round your answer.

3. (3 pts.) If a country has a growth rate of 2.3 percent per year, how many years will it take for that country's population to double? Use an exponential model, and please round your answer to 3 decimal places.