In-Class Assignment 5 (Due: 10/8/21)

For each of the following, write down a linear model that describes the situation. Use your model to answer the associated questions.

1. An auto repair shop charges you $200 dollars for parts and $50 per hour for labor.

   (a) If the repairs require four hours of labor, how much will you have to pay?

   (b) You have a budget of $500 dollars. How many hours of labor you can afford?

2. The temperature is 25 degrees Fahrenheit at 7:00PM and is expected to fall 2 degrees per hour until 7:00AM.

   (a) Identify the domain of your model.

   (b) What will the temperature be at 3:00AM?

   (c) Will the temperature drop below zero?

3. The population of rhinos was 21,000 in 2009 and 27,300 in 2019.

   (a) How many rhinos were there in 2016?

   (b) When will the rhino population reach 30,000?

   (c) Give a verbal description of the y-intercept of your model.

4. The number of people afflicted with the common cold in the winter months steadily decreased by 205 each year from 2005 until 2010. In 2005, 12,025 people were afflicted.

   (a) Find the x intercept of your model and give a verbal description of it's meaning.