Linear Models Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

SHOW ALL WORK ON NOTEBOOK PAPER!!

1. A person that is 70 inches tall weighs 167 pounds. A person who is 62 inches tall weights about 125 pounds.

Write a linear model to represent this if height is the independent variable and weight is the dependent variable.

1. Predict the weight of a person who is 77 inches tall.
2. Predict the height of a person who weighs 155 pounds.
3. According to a certain linear prediction equation, a person 25 years old needs 2400 calories of food intake a day. A person 30 years old needs 2300 calories.
4. Write a linear model for the caloric needs *y* of a person *x* years old.
5. Predict the caloric needs of a person who is 34 years old.
6. Interpret the slope in the context of this problem. BE SPECIFIC.
7. Interpret the y intercept in the context of this problem. BE SPECIFIC!
8. The rate of increase at a college from 1990 to 1995 was approximately linear. In 1990, the tuition was $15,500 and in 1995, it was $22,600.
9. Write a linear model for the tuition from 1990 to 1995. Let t=0 represent 1990.
10. Approximately what will be the tuition for the college in 2000?
11. Interpret the slope.
12. Interpret the y intercept.
13. With a certain long distance company, the long distance call is $1.70 for a 4 minute call. The same company charges $4.15 for an 11 minute call.
14. Write a linear model that describes the cost of these calls in terms of the number of minutes talked.
15. How much would it cost to talk on the phone for 30 minutes?
16. How long could you talk if you had $10?
17. A machine that originally cost $15,600 has a value of $7500 at the end of three years. The same machine has a value of $2800 at the end of 8 years.
18. Find the average rate of change in the value of the machine between its purchase and the end of 3 years.
19. Find the average rate of change in the value of the machine at the end of 3 years and the end of 8 years.