

MATH 122 WORKSHEET 1

Show all work for full credit.

1. A police car was traveling down Interstate 26 in a high-speed chase from Newberry. It was in Newberry at exactly 8PM ($t = 8$) and was in Ballentine, 24 miles from Newberry, at exactly 8:15PM.

a. Write a linear equation expressing the police car's distance, D , in miles from Newberry at time t , in hours since noon.

b. What are the units of the slope? _____
Using everyday language, explain the meaning of the slope.

2. The value of a computer has depreciated linearly by \$165 every year since it was purchased in 2005. By 2009, the computer is worth \$495.

a. Write an equation expressing the value, V , as a function of the time t in years since 2005.

b. Find and interpret the vertical intercept.

c. Find and interpret the horizontal intercept.

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3. The amount of caffeine in a person's bloodstream after drinking a cup of coffee is

$$A(t) = 120(0.85)^{0.02t} \text{ milligrams,}$$

where t represents the number of minutes since the coffee was consumed.

- a. Determine the value of $A(50)$ and explain in everyday language what this means.

- b. Find and interpret the vertical intercept of this equation.

4. Decide whether the following functions are linear. Explain how you know *without* finding the equation of the line.

a.

x	3	5	8	12	17
$g(x)$	7	14	21	28	35

b.

x	5	7	10	14	19
$h(x)$	20	26	35	47	62

5. Complete the table of values for the linear function.

x	6	10	14	18	22
$f(x)$	23	34			

Write the equation of this linear function.