Math 1743 - Math Center Worksheet
Section 1.1

1. C(t) billion dollars is the value of cumulative capital investment in the cellular phone industry between 1987 and 2001, where t is the number of years after 1990.

a. Specify the input variable notation for this function.

b. Specify the output variable notation for this function.

c. Specify the input description for this function.

d. Specify the output description for this function.

e. Specify the input units (of measure) for this function.

f. Specify the output units (of measure) for this function.

g. Write a sentence of practical interpretation for the following notation:
C(7) = 46.1

h. Write the following statement using function notation: “In 1988, $3,600,000 was invested in the cellular phone industry.”

i. Draw an input/output diagram for this function.

2. Use your calculator to answer the following:

Round your answers to the thousandths place.

a. Evaluate $f(x) = \frac{16 - 5x - x^2}{x}$ when x = 10.2 and when $x = -\frac{3}{4}$.

b. Find the input value(s) of the function corresponding to each output given.

$f(x) = \frac{16 - 5x - x^2}{x}$, f(x) = 5

c. Evaluate $g(t) = 1.6e^{0.1t} - 6\ln t - \sqrt{2t}$ when t = 16 and when $t = \frac{44}{3}$.

d. Find the input value(s) of the function corresponding to each output given.

$g(t) = 1.6e^{0.1t} - 6\ln t - \sqrt{2t}$, g(t) = – 8.7

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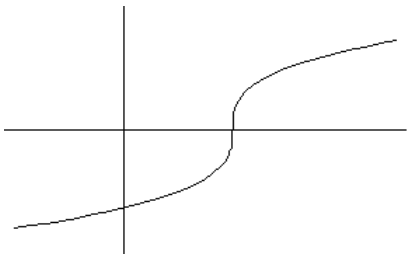
Section 1.2

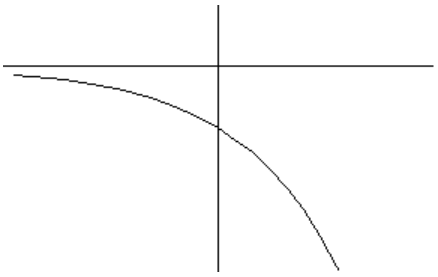
1. Given the graph, answer the following:



a. Is the graph increasing, decreasing, constant or some combination of these?

b. Is there an inflection point? If so, label its approximate location.

2. Use limit notation to describe the end behavior of the following graph:



3. Numerically estimate the limit: $\lim_{x \to \infty} 5.4e^{-0.2x}$. Start at x = 10 and increment by doubling.

Math 1743 - Math Center Worksheet
Section 1.3

1. Algebraically evaluate the limit: $\lim_{x \to 5} \frac{x - 5}{x^2 - 7x + 10}$

2. Numerically evaluate the limit: $\lim_{x \to 6} \frac{2x - 12}{2x^2 - 19x + 42}$

Math 1743 - Math Center Worksheet
Section 1.4

The value of a certain investment in certain years is given in the following table:

year	2004	2005	2007	2008	2009
value	$237.85	$292.05	$336.77	$388.23	$450.54

a. Find a complete linear model V(x) for the data. Align years so that x = 0 in 2004.

b. What are the units for the slope of the line?

c. What are the units for the y-intercept of the line?

d. Use the linear model you wrote in part a to find V(2).

e. Write a sentence interpreting your answer to part b.

f. Find and interpret V(6).

g. How many years after 2004 will the investment be worth $1000? Round to the tenths place.