

Graded Homework Assignment 3

1. To make a music video it costs \$750 to rent a studio plus \$5 for each copy produced.
(see section 9.1)

- Write a formula of the form $C(x) = ax + b$ that calculates the cost of producing x videos.
- A music video is produced. Find the cost of producing the video and making 2500 copies of a video.

2. The table below shows the average length of a major league baseball game (in minutes) for three consecutive years.

Year	2000	2001	2002
Length in Minutes	180	176	172

- What was the average length of a baseball game in the year 2000?
- By how many minutes did the average length change each year?
- Find a linear function f that models these data. Let $x = 0$ correspond to the year 2000.
- Use f to predict the average length of a game in the year 2004.

For problems 3 through 7 consider the following two polynomials: (see page 324)

$$y = f(x) = x^4 - 2x^3 + 6x^2 - 8x + 2$$

$$y = g(x) = 3x + 7$$

- What is the degree of $f(x)$?
- Find the numerical value of $f(0)$.
- Find the numerical value of $f(-1)$.
- Which polynomial is the linear function, and why is it called linear?
(linear functions have a degree of 1)
- What does the graph of linear function look like?

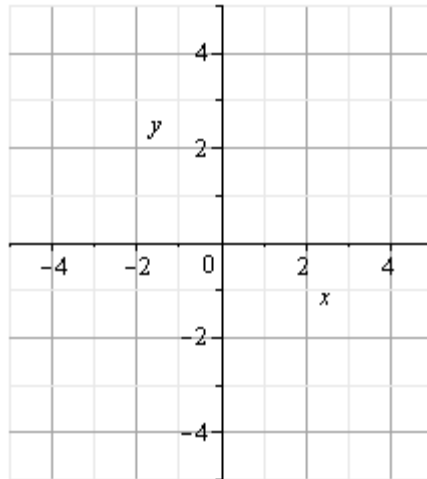
8. The following table lists the calories burned by a 180-pound person shopping at a mall:

Time (in minutes)	10	30	50	80
Calories	30	90	150	240

- What type of polynomial function would model these data points? (sketch to function and observe and identify the resulting sketch)
- Find a function C that models the calories burned in t minutes.

9. Graph the absolute value function $y = f(x) = |x - 2|$ by completing and then using the table below:
(see page 628)

x	-3	-2	-1	0	1	2	3
y							



10. If $f(x) = \frac{1}{x-2}$, find $f(0)$.
11. For the rational function defined in problem 10, for what value of x is the function undefined?
12. Graph $y = f(x) = |2x + 1|$.
13. Graph $y = f(x) = |2x + 1| + 1$.

Solve for x if: (see page 628, example 1)

14. $|x| = 4$
15. $|x| = -1$
16. $|x + 1| = 2$
17. $|6x + 2| - 2 = 6$
18. $\frac{12}{x+3} = 6$
19. Two numbers are within 3 numbers of 10. What are the two numbers?
20. What is the domain and what is the range of the function $y = f(x) = x^2 - 4$?
(see example 5 page 774)