

*Relax. You have done problems like these before. Even if these problems look a bit different, just do what you can. If you're not sure of something, please ask! You may use your calculator. Please show all of your work and write down as many steps as you can. Don't spend too much time on any one problem. Please leave the following grading key blank for me to use. Do well. And remember, ask me if you're not sure about something.*

Problems	1	2	3	4	Total		Grade
Points						%	
Out of	16	16	6	12	50		

1. When my nephew was born last year he weighed approximately 8 pounds. After he was born, he gained 0.5 pounds per week.

(a) Identify and name the variables in the story and state their units.

(b) Which variable is independent and which is dependent?

(c) Make a table showing my nephew's weight after 4 weeks, 8 weeks, and 20 weeks.

(d) Is the function increasing or decreasing?

2. The table shows the cost to hire the Augsburg Jazz Band to play for events.

$M$	30	60	120	150
$C$	700	800	850	900

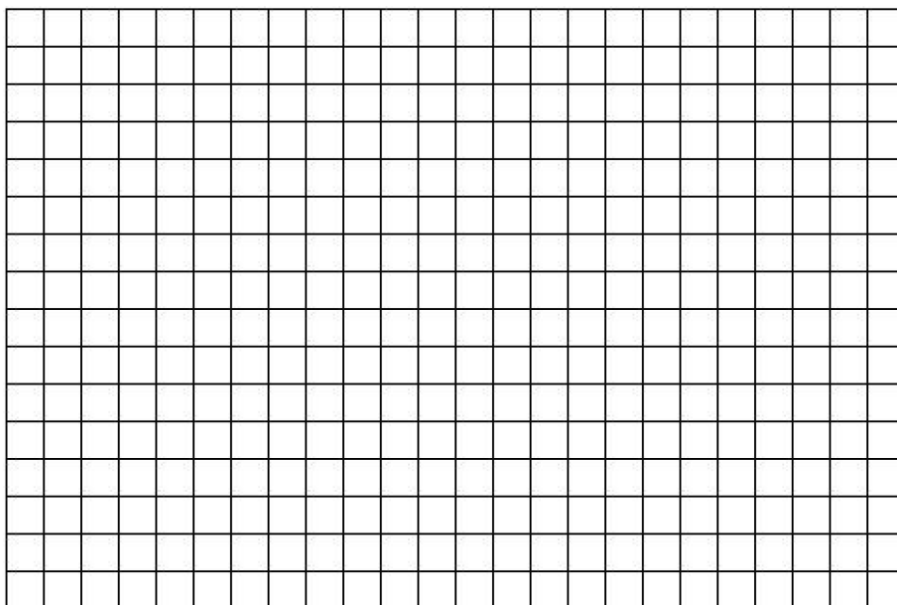
In the table,  $M$  = number of minutes played and  $C$  = total cost of band (\$).

- (a) What is the cost for hiring a band to play for 60 minutes?

*Don't forget the units.*

- (b) Approximately what is the cost for hiring the band to play for 90 minutes?

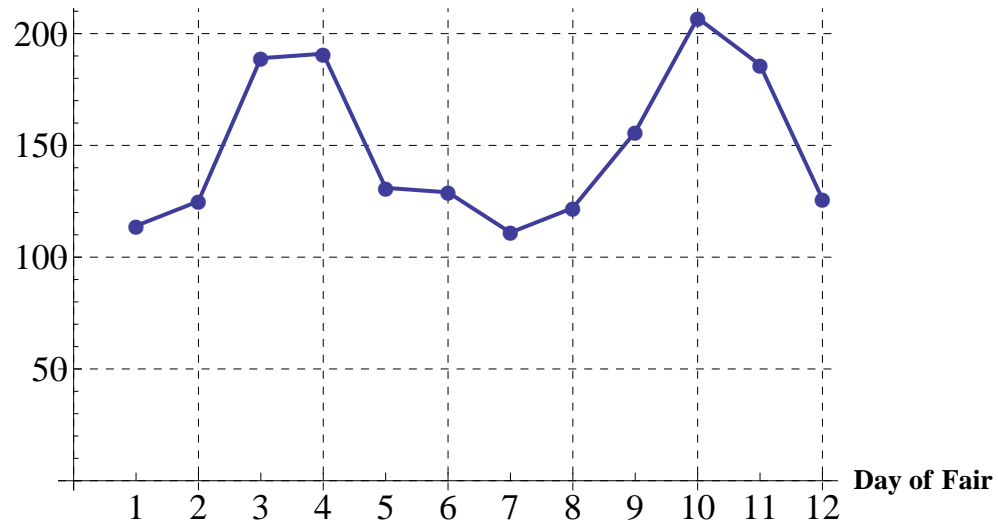
- (c) Draw a graph illustrating this information. *Be sure your axes are labeled and evenly scaled. Plot the points given and sketch in a smooth line or curve connecting them.*



- (d) Does your answer to part b agree with your graph? (Yes or no) If no, what would a better answer be?

3. The 2009 Minnesota State Fair broke many attendance records. The graph below shows the daily attendance for each day of the fair.

**2009 Attendance (thousands of people)**



- (a) What was the approximate attendance for the second day of the fair?
- (b) For how many days was the attendance greater than 150,000 people?
- (c) This year the State Fair started on a Thursday. What do you think causes the attendance to peak for a given day? Please write a sentence explaining your answer.

4. At the 2009 World Swimming Championships, Michael Phelps set a new world record in the 200 meter butterfly. He swam 200 meters with a time of 1 minute and 51.51 seconds.

(a) Convert his time into (decimal) minutes.

(b) His speed was approximately 107 meters/minute, as you can check. How fast did he swim in miles per hour? *Use 1 meter = 3.28 feet and 1 mile = 5,280 feet.*