Math 3 Name:_____ [40 pts]

MP2 Long-term #4

Date:_____

1. The Chorus of East High School performed their Winter Concert this December. They sold tickets to the show at the door. Proceeds for the ticket sales *P* depend on the number of tickets sold *t* according to the rule $P = 6t - 400$

a. Explain what the constant and the coefficient represent in the situation. [2 pts]

b. Explain what the constant and the coefficient tells you to expect in a table of values for the function. [2 pts]

c. Explain what the constant and the coefficient tells you to expect in a graph of the function. [2 pts]

d. Write a *NOW-NEXT* rule to represent the situation. [2 pts]

2. Victoria got a job at her school as a scorekeeper for a summer basketball league. The job pays $450 for the summer and the league plays on 25 nights. Some nights Victoria will have to get a substitute for her job and give her pay for that night to the substitute.

a. What should Victoria pay a substitute for one night? [2 pts]

b. Use the letters *n* for nights a substitute works, *S* for pay to the substitute, and *E* for Victoria's total summer earnings.

i. Write a rule for calculating *S* as a function of *n*. [2 pts]

ii. Write a rule for calculating *E* as a function of *n*. [2 pts]

3. Write rules for linear functions with graphs containing the following pairs of points. [3 pts each]

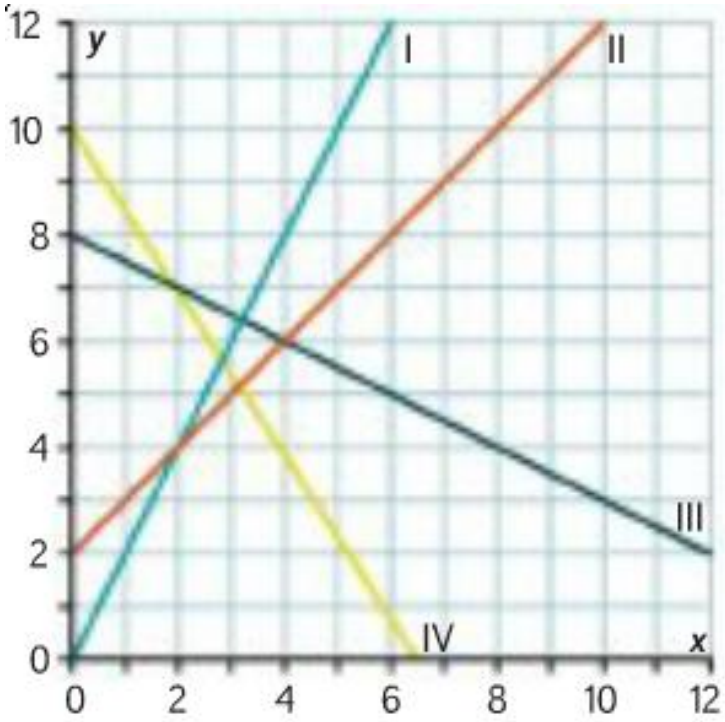
a. (0,3) and (6,6)

b. (0,-4) and (5,6)

c. (-4,-3) and (2,3)

d. (-6,4) and (3,-8)

4. The diagram at the right shows four linear graphs. <u>For each graph</u> I-IV, do the following.



a. Find the rate at which *y* changes as *x* increases. [4 pts]

b. Write a *NOW-NEXT* rule that represents the pattern of change shown by the graph. [4 pts]

c. Write a rule for calculating *y* as a function of *x*. [4 pts]

d. Explain at least two ways that the different representations – function rule, *NOW-NEXT* rule, and graph – relate to each other. [2 pts]