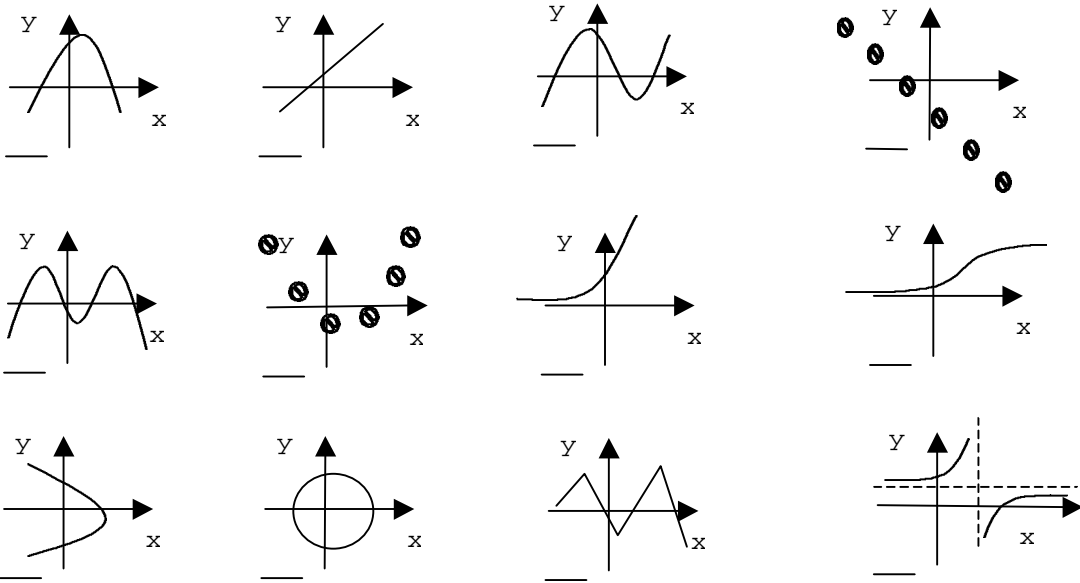


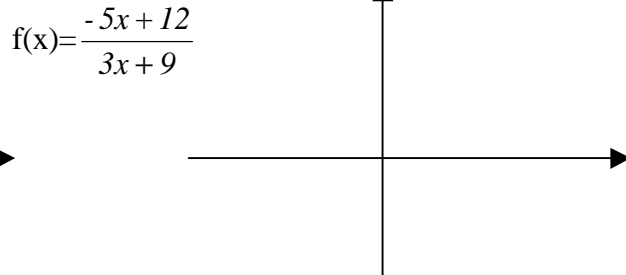
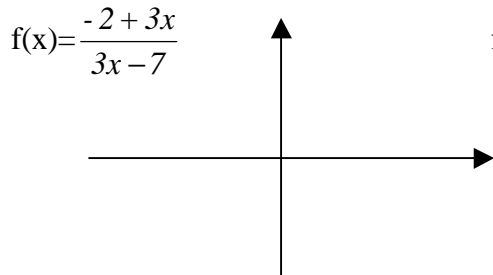
SAMPLE TEST 2

I. Classify each of these graphs by writing the letter of the appropriate response in the blank beside the graph. The responses are:

- a. Y is most likely a linear function of X.
- b. Y is most likely a quadratic function of X.
- c. Y is most likely a cubic function of X.
- d. Y is most likely a quartic function of X.
- e. Y is most likely a non-polynomial rational function of X.
- f. Y is most likely an exponential function of X.
- g. Y is a function of X, but none of the above types.
- h. Y is NOT a function of X.



II. Sketch the graph of each rational function. Write the *equations* of the horizontal and vertical asymptotes of each.



Horiz Asym: _____
 Vert Asym: _____

Horiz Asym: _____
 Vert Asym: _____

III. An arrow is shot at time $t=0$ and its height in feet is measured at four points in time. Here is the data:

| <u>Time t in seconds</u> | <u>Height $h(t)$ in feet</u> |
|---------------------------------------|-----------------------------------------|
| 1 | 164 |
| 3 | 356 |
| 6 | 404 |
| 8 | 276 |

Use your TI-82/3 to find the best quadratic that fits these points and answer the following:

a. What is the equation for $h(t)$? $h(t) =$ _____

b. Draw a graph of your quadratic function here:



c. The archer was standing on a hill when the arrow was released. How high was the bow above level ground at the time of release? _____

d. How long does the arrow stay in the air? _____

e. At what time does the arrow reach its maximum height? _____

f. What is the maximum height of the arrow? _____

IV A gold watch is dropped from a sky scraper. In t seconds it falls $s(t)$ feet. Here are some data for distance dropped in t seconds:

| <u>t</u> | <u>$s(t)$</u> |
|-----------------------|--------------------------|
| 1 | 16 |
| 2 | 64 |
| 6 | 576 |
| 7 | 784 |

Use Power Regression on your TI-82/3 to describe the distance dropped as a function of time elapsed. Answer the following:

a. What is the equation for $s(t)$? $s(t) =$ _____

b. How far will the watch drop in five and 1/4 (5.25) seconds? _____

c. If the sky scraper is 1458 feet high, how long will it take the watch to hit the ground? _____

(Turn in your scratch work.)

NAME : _____