

# Pre-Calculus Pre-Test (Chapter 1)

## I. Match the following words with their correct definitions/equation.

- a. function and its inverse both pass the vertical line test
- b.  $ax^2 + bx + c = f(x)$
- c. a shift of a function as a result of add. or subt.
- d. every x has only one y
- e.  $mx + b = f(x)$
- f. original function
- g.  $a \cdot b^x = f(x)$
- h.  $f(-x) = -f(x)$
- i.  $a_n x^n + a_{n-1} x^{n-1} + \dots + a_1 x + a_0 = f(x)$
- j. a function of the form  $f(g(x))$
- k. where a graph crosses the y axis
- l. equations in which both x and y are expressed as a function of a third variable t
- m. transformed functions
- n.  $ax^b + f(x)$
- o. a magnification of a function as a result of mult. or div.
- p. hole/break in the graph
- q.  $\frac{a}{x} = f(x)$
- r.  $f(-x) = f(x)$
- s.  $ax = f(x)$
- t. where the graph crosses the x axis

d 1. function

p 2. discontinuity

k 3. y-intercept

t 4. x- intercept

i 5. polynomial function

b 6. quadratic function

e 7. linear function

s 8. direct variation function

n 9. power function

g 10. exponential function

g 11. inverse variation function

a 12. one-to-one function

o 13. dilation

c 14. translation

f 15. pre-image

m 16. image

j 17. composite function

l 18. parametric equation

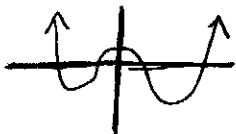
h 19. odd function

r 20. even function

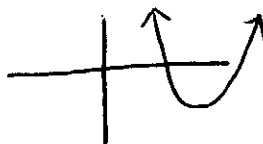
\* concentrate on these

**II. Draw the following:** (these are just samples)

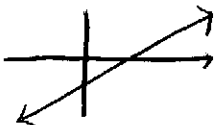
21. polynomial function



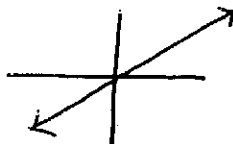
\* 22. quadratic function



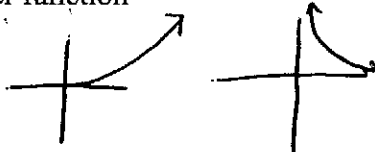
\* 23. linear function



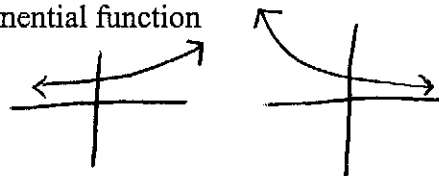
24. direct variation function



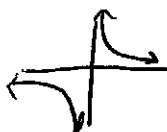
\* 25. power function



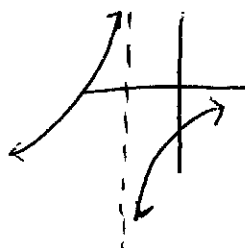
\* 26. exponential function



27. inverse variation function



28. rational algebraic function



**III. Solve:**

29. If  $f(x)$  is  $3x + 2$  and  $g(x) = 2x^2 - 4$  find:

a.  $f(-5)$

$$3(-5) + 2$$

$$-15 + 2$$

$$\boxed{-13}$$

b.  $f(g(2))$

$$g(2) = 2(2)^2 - 4$$

$$2(4) - 4$$

$$8 - 4 = 4$$

$$f(g(2)) = 3(4) + 2$$

$$12 + 2 = \boxed{14}$$

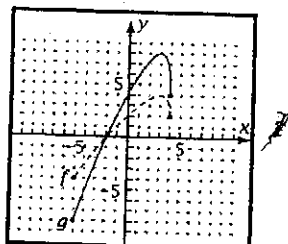
c.  $f^{-1}(x)$   $y = 3x + 2$

$$\therefore x = 3y + 2$$

$$x - 2 = 3y$$

$$\boxed{\frac{x-2}{3} = y^{-1}}$$

30. Describe how the dashed graph (f) was transformed to get the solid graph (g).



$$g(x) = 2(f(x))$$