MS 100 College Algebra Test Three   Name:

Match the following three graphs below to the correct function below the graphs.
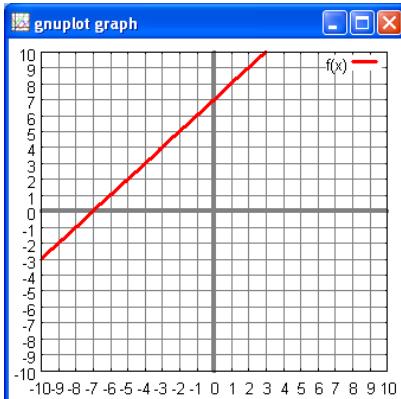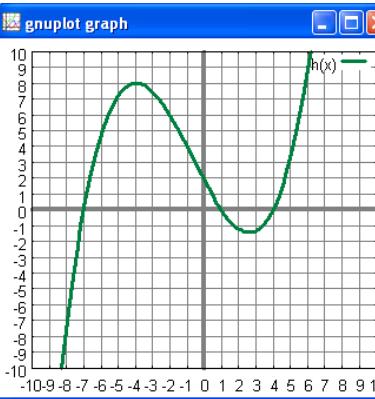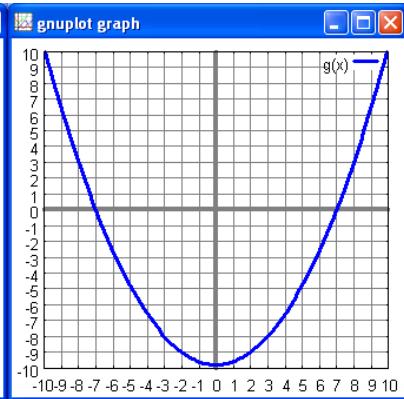
A.   B.   C

_____ 1. f(x) = x + 7

_____ 2. $f(x)=\dfrac{x^2}{5}-9.8$

_____ 3. $f(x)=\dfrac{x^3+2x^2-31x+28}{15}$

	f(x) = x + 7	$f(x)=\dfrac{x^2}{5}-9.8$	$f(x)=\dfrac{x^3+2x^2-31x+28}{15}$
What is the name of the shape formed on a graph by the equation in the top row?	4.	5.	6.
What is the degree of the equation in the top row?	7.	8.	9.
Does the equation in the top row pass the vertical line test?	10.	11.	12.
Does the equation in the top row pass the horizontal line test?	13.	14.	15.
Is the equation in the top row a function?	16.	17.	18.
Does the equation in the top row have an inverse **function**?	19.	20.	21.

22. For the following questions use the three functions:

f(x) = 4x − 20   g(x) = −4x + 20 $h(x)=x^2+2x-143$

a. _____ Find $(f \circ g)(5)$

b. _____ Find $(g \circ f)(-5)$

c. _____ Find (f + g)(x)

d. _____ Find (f − g)(x)

e. _____ Find (f × g)(x)

f. _____ Find (f ÷ g)(x)

g. _____ Find [g(x)]²

h. _____ Find $(f \circ g)(x)$

i. _____ Find $(g \circ f)(x)$

j. _____ Does the function f(x) pass the vertical line test?

k. _____ Does the function f(x) pass the horizontal line test?

l. _____ Find the inverse function $f^{-1}(x)$

m. _____ Does the function g(x) pass the vertical line test?

n. _____ Does the function g(x) pass the horizontal line test?

o. _____ Find the inverse function $g^{-1}(x)$

p. _____ Find: $(f \circ g \circ h)(11)$

23. A water wave in shallow water travels with a velocity v: $v(d)=\sqrt{gd}$ where g is the acceleration of gravity and d is the depth of the water. The kinetic energy of a moving object is k(v) = $\frac{1}{2}mv^2$ where m is the mass and v is the velocity.

Find $(k \circ v)(d)$

24. [0 , _____] Find the y-intercept for $f(x) = -x^2 - 7x + 18$

25. Find the zeros of the function $f(x) = -x^2 - 7x + 18$

  [_____ , 0] [_____ , 0]

26. Find the axis of symmetry for $f(x) = -x^2 - 7x + 18$

  axis of symmetry x = _____

27. Find the vertex for $f(x) = -x^2 - 7x + 18$

  [_____ , _____]

28. On the chart provided above sketch a smooth graph of: $f(x) = -x^2 - 7x + 18$

29. _____ Is the curvature of $f(x) = -x^2 - 7x + 18$ positive or negative?