

Name: _____

EMPLID: _____

Directions: *Show all of your work* as neatly and clearly as possible in the space provided and write your answer on the line provided.

1) Let $f(x) = 2x - 3$ and $g(x) = 5 - x^2$ to evaluate $g(f(x))$.

2) Find the inverse of $f(x) = \sqrt[3]{\frac{6-x}{7}}$.

3) Write $f(x) = x^2 - 6x + 3$ in standard/vertex form.

4) Find the range of $f(x) = x^2 - 6x + 3$. Write your answer in interval notation.

5) Find the maximum or minimum of $f(x) = x^2 - 6x + 3$.

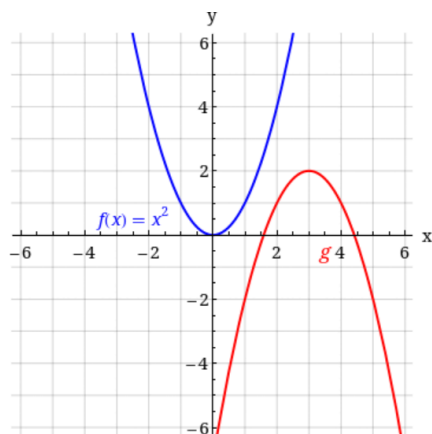
6) Sketch the graph of $f(x) = x^2 - 6x + 3$.

7) Find all of the zeros of $P(x) = x^3 - 2x^2 - 15x$.

8) Determine the End Behavior of $P(x) = x^3 - 2x^2 - 15x$.

9) Make a rough sketch of the polynomial $P(x) = x^3 - 2x^2 - 15x$.

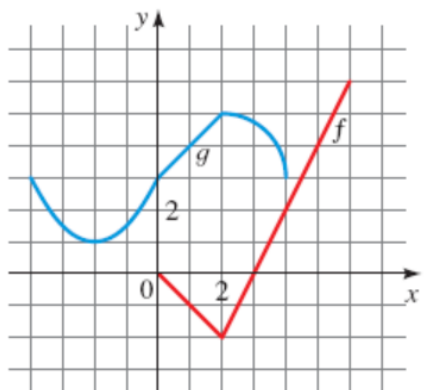
10) The graphs of f and g are given. Find a formula for $g(x)$.



11) Let $f(x) = 2\sqrt{x}$. If $g(x)$ is the graph of f shifted down 4 units and left 4 units, write a formula for $g(x)$.

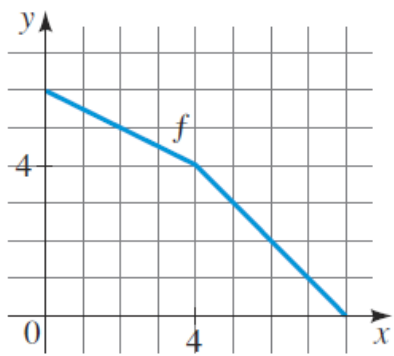
12) True or False: $f^{-1}(f(x)) = x$.

13) Use graphs of f and g to find $g(f(0))$.



14) Express $T(x) = (x - 9)^5$ in the form $f \circ g$.

15) Use graph of f to find $f^{-1}(6)$.



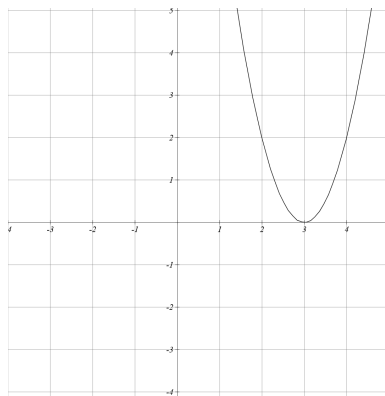
16) Use the table to find $f^{-1}(f(1))$.

x	1	2	3	4	5	6
$f(x)$	4	6	2	5	0	1

17) Find the domain and range of $f(x) = \frac{x+2}{x+6}$.
Write your answer in interval notation.

18) Find the inverse of $g(x) = \frac{1}{x+4}$.

19) Write a formula for the quadratic function graphed below.



20) Sketch the graph of $y = -2|x + 5| + 3$ not by plotting points but by starting with the graph of a parent function and applying transformation.
