Name ________________________________

PC Review Sheet for Exam 3 Quarter 1

1. If $f(x) = x^3 - 3x + 5$, find the following:
   a. $f(1)$
   b. $f(-2)$
   c. $f(x-2)$
   d. $f(2x)$
   e. $f(x+h)$

2. If $h(x) = \sqrt{x^2 - 16}$, $f(x) = x - 1$, and $g(x) = x^2$ find and expression for the following:
   a. $(g \circ f)(x)$
   b. $(g \circ h)(x)$
   c. $(f \circ g \circ h)(x)$
   d. $(f \circ h \circ g)(x)$

3. Evaluate $\frac{f(x+h) - f(x)}{h}$ if:
   a. $f(x) = x^2 - 3x - 4$
   b. $f(x) = 3x - 2$
   c. $f(x) = \frac{1}{x}$

4. Find the inverse of each of the given functions and determine if the given function is one to one.
   a. $f(x) = 3x - 2$
   b. $y = x + 20$
   c. $f(x) = \sqrt{3x - 6}$

5. Find the slope of the line:
   a. Which passes through the points (2,-4) and (-2,7)
   b. Whose equation is -3x + 4y = 12
   c. Perpendicular to a line whose equation is y + 3 = 2(x – 3)
   d. Parallel to a line whose equation is y = 3(2x-5)

6. For each, write the equation of the line in point-slope, slope-intercept, and standard form:
   a. Whose slope is 3 and which passes through (2,-4)

   b. Which passes through the points (2,-4) and (-2,7)

7. Express each of the following as composites of two or more functions:

   a. $7x-2$

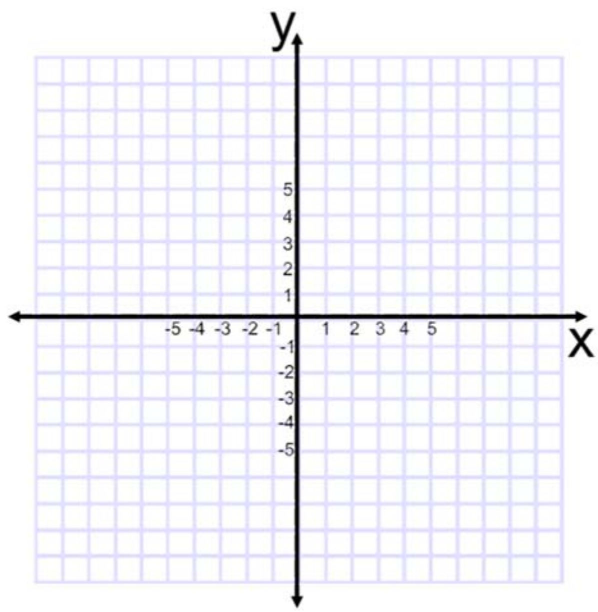
   b. $\dfrac{12}{\sqrt{x+12}}$

   c. $\left(x^4-6\right)^9$

8. Graph:

   a. $f(x)=\dfrac{-1}{2}x+2$

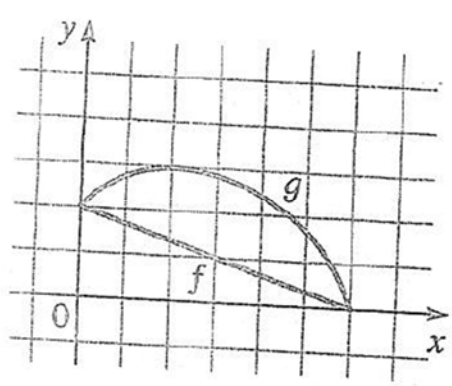
   b. $f^{-1}(x)$



9. Show that f(x) and g(x) are inverses of each other. $f(x)=\sqrt{x-5}$ and $g(x)=x^2+5$

10. Use the given graphs of f and g to evaluate the expression.

(a) $f(g(2))$
(b) $g(f(0))$
(c) $(g\circ f)(6)$
(d) $(f\circ f)(6)$



11. Express each of the following below as composites of two or more of the following:

$a(x) = x - 1$ $\quad g(x) = x^4$ $\quad b(x) = x + 2$ $\quad h(x) = \dfrac{1}{x}$

$e(x) = 4x$ $\quad k(x) = \sqrt[3]{x}$ $\quad f(x) = x^2$

(a) $4x - 1$

(g) $x + 1$

(m) $x^{\frac{4}{3}}$

(b) $4x - 4$

(h) $x - 2$

(n) $\dfrac{1}{\sqrt[3]{x+2}}$

(c) $4x^2$

(i) $x^2 + 1$

(o) $\dfrac{1}{\sqrt[3]{x}+2}$

(d) $16x^2$

(j) $\sqrt[3]{x^4 + 1}$

(e) $(x^4 - 1)^2$

(k) $\dfrac{1}{\sqrt[3]{x+2}}$

(f) $16x - 4$

(l) $\sqrt[3]{x+1}$