

Name \_\_\_\_\_

PC Review Sheet for Exam 3 Quarter 1

1. If  $f(x) = x^3 - 3x + 5$ , find the following:

a.  $f(1)$

d.  $f(2x)$

b.  $f(-2)$

e.  $f(x+h)$

c.  $f(x-2)$

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

a.  $(g \circ f)(x)$

c.  $(f \circ g \circ h)(x)$

b.  $(g \circ h)(x)$

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  $y = 3(2x - 5)$

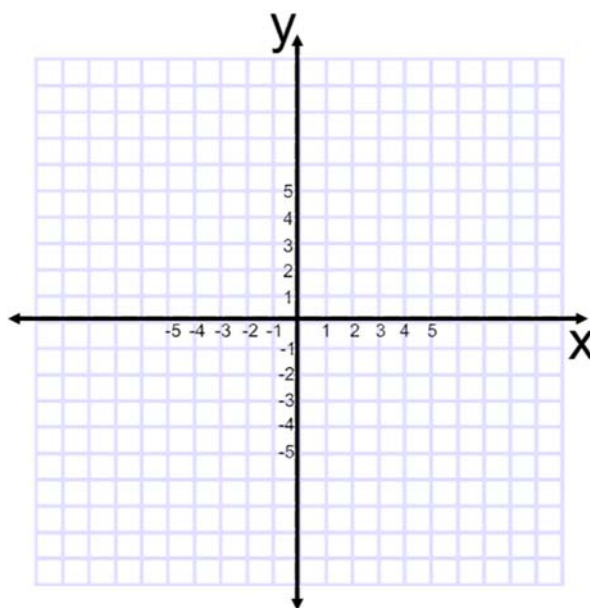
6. For each, write the equation of the line in point-slope, slope-intercept, and standard form:
- Whose slope is 3 and which passes through (2,-4)
  - Which passes through the points (2,-4) and (-2,7)

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

- $7x - 2$
- $\frac{12}{\sqrt{x+12}}$
- $(x^4 - 6)^9$

8. Graph:

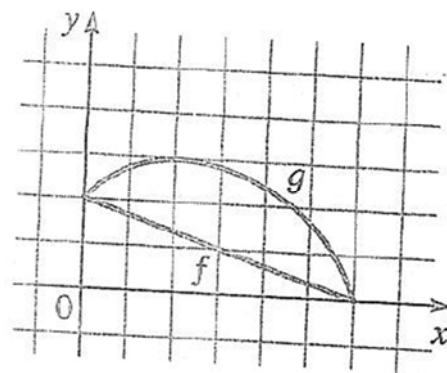
- $f(x) = \frac{-1}{2}x + 2$
- $f^{-1}(x)$



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

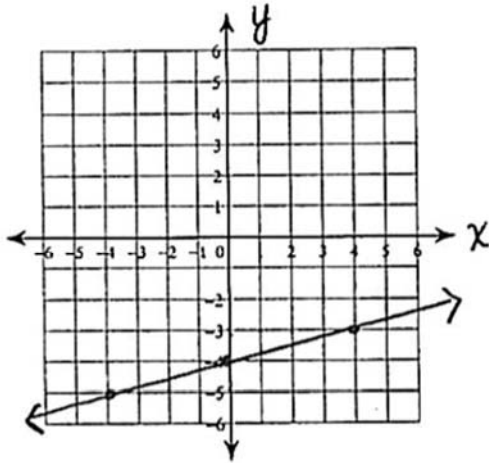
10. Use the given graphs of  $f$  and  $g$  to evaluate the expression.

- $f(g(2))$
- $g(f(0))$
- $(g \circ f)(6)$
- $(f \circ f)(6)$

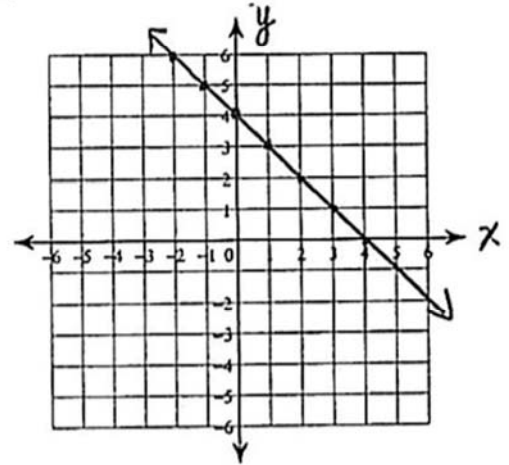


11. Write the equation of each line from the graph. State the domain, range,  $x$  and  $y$  intercepts.

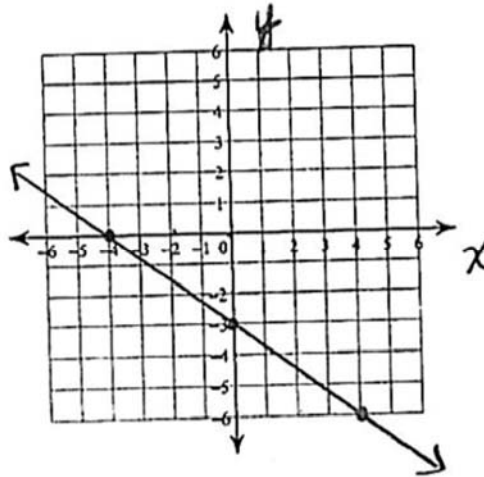
(a)



(b)



(c)



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

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

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

(a)  $4x - 1$

(g)  $x + 1$

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

(b)  $4x - 4$

(h)  $x - 2$

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

(c)  $4x^2$

(i)  $x^2 + 1$

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

(d)  $16x^2$

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

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

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

(f)  $16x - 4$

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