

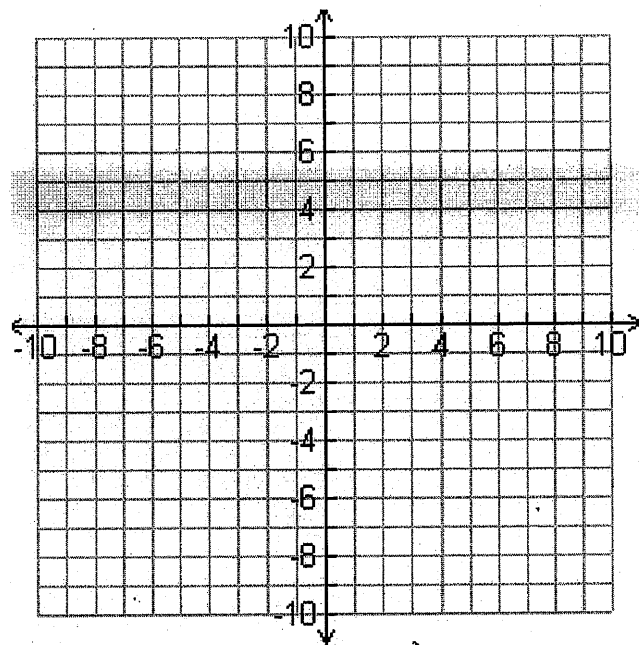
Non-AP Calculus Ch. P Test Review

1) Find the domain of $\frac{1}{\sqrt{3+2x}}$

2) Find $\frac{f(x+\Delta x)-f(x)}{\Delta x}$ for $f(x) = 3x^2$

3) Graph the piecewise function and determine Domain and Range

$$f(x) = \begin{cases} 4 + x, & x < -2 \\ 2 - x^2, & -2 < x \leq 5 \end{cases}$$



Domain: _____

Range: _____

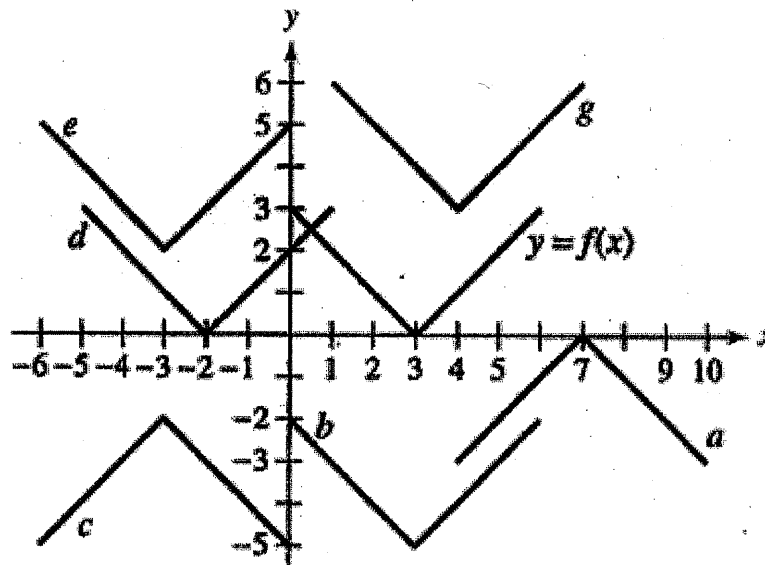
4) Determine symmetry for equation: (y-axis, x-axis, origin, none)

$$3x^2y^4 - 5x^6y^8 - 13y^2 + 12x = 0$$

5) Find the equation of line passing through $(-3, 1)$ and perpendicular to $2x - 5y = 4$

6)

Matching use the graph of $y = f(x)$ to match the function with its graph.



6a) $y = f(x + 5)$ _____

6b) $y = f(x) - 5$ _____

6c) $y = -f(-x) - 2$ _____

6d) $y = -f(x - 4)$ _____

6e) $y = f(x + 6) + 2$ _____

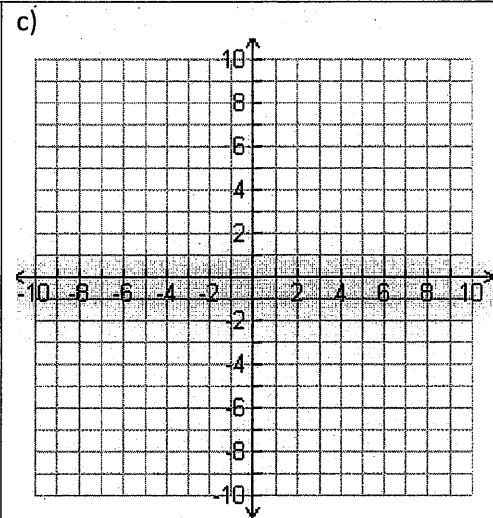
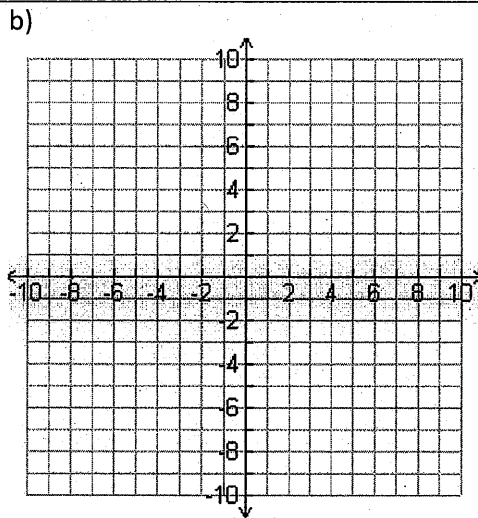
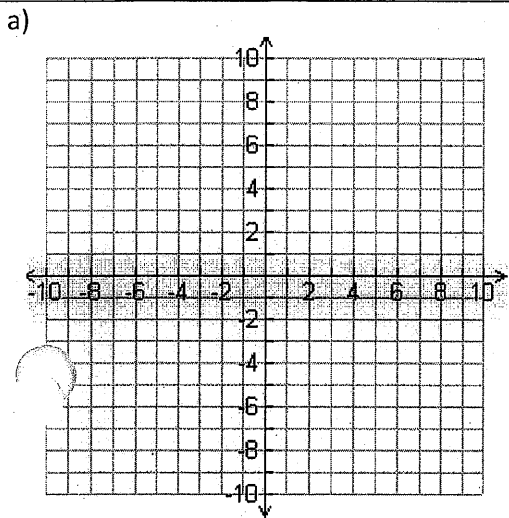
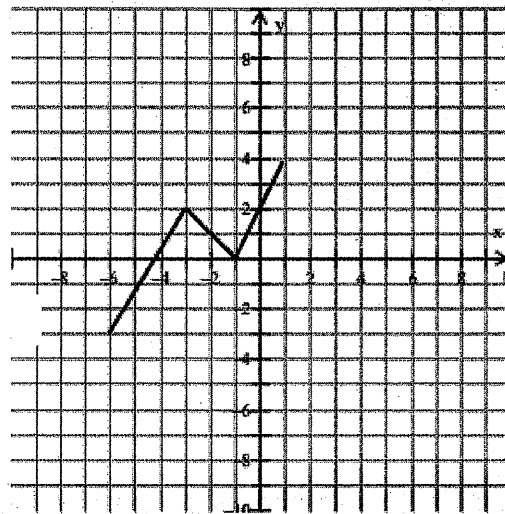
6f) $y = f(x - 1) + 3$ _____

7) Use the graph of f shown in the figure to sketch the graph of each function

a) $f(x-3) + 2$

b) $2f(x)$

c) $-f(x)$

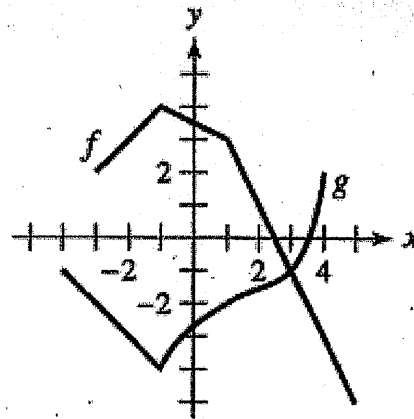


8) Given $f(x) = x^2 - 3x + 4$, find a simplified expression to represent $f(x+2) - f(x)$.

9) Find all points of intersection (ordered pairs!) of the graphs of $x^2 - 2x - y = 6$ and $x - y = -4$

10)

Evaluating Composite Functions Use the graphs of f and g to evaluate each expression. If the result is undefined, explain why.



(a) $(f \circ g)(3)$	(b) $g(f(2))$
(c) $g(f(5))$	(d) $(f \circ g)(-3)$
(e) $(g \circ f)(-1)$	(f) $f(g(-1))$

11) Evaluate the function as indicated

$$f(x) = \begin{cases} 3x - x, & x < -5 \\ 2 - x^2, & -5 < x \leq 0 \\ 5 - 2x, & x > 0 \end{cases}$$

a) $f(-6) =$

b) $f(0) =$

c) $f(2) =$

d) $f(t^2 + 2) =$

Non-AP Calculus Ch. P Test Review

key

1) Find the domain of $\frac{1}{\sqrt{3+2x}}$

$$3+2x > 0 \quad 2x = -3$$

$$3+2x = 0 \quad x = -\frac{3}{2}$$

$$x > -\frac{3}{2} \text{ or } \left(-\frac{3}{2}, \infty\right)$$

2) Find $\frac{f(x+\Delta x) - f(x)}{\Delta x}$ for $f(x) = 3x^2$

$$f(x+\Delta x) = 3(x+\Delta x)^2$$

$$\frac{f(x+\Delta x) - f(x)}{\Delta x} = \frac{3(x+\Delta x)^2 - 3x^2}{\Delta x}$$

3) Graph the piecewise function and determine Domain and Range

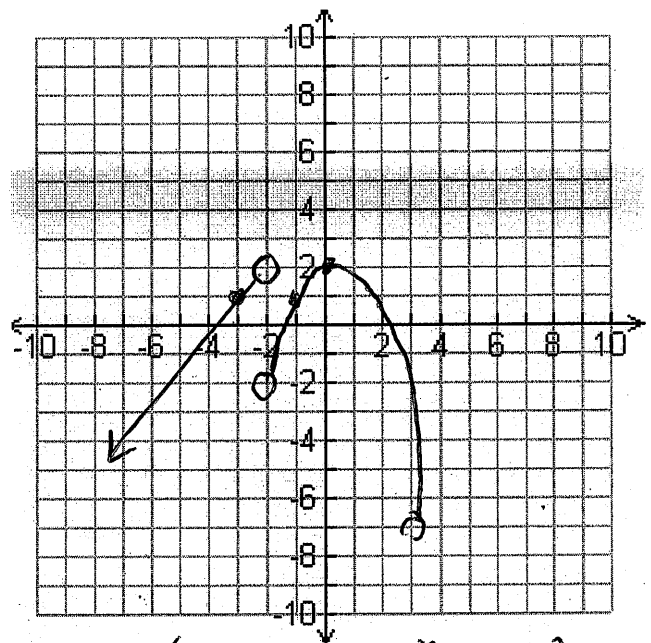
$$f(x) = \begin{cases} 4+x, & x < -2 \\ 2-x^2, & -2 < x \leq 3 \end{cases}$$

$$y = 4+x$$

x	y
-2	2
-3	1
-4	0

$$y = 2-x^2$$

x	y
-2	-2
-1	1
0	2
1	1
2	-2
3	-7



Domain: $(-\infty, -2) \cup (-2, 3)$

Range: $(-7, 2]$

4) Determine symmetry for equation: (y-axis, x-axis, origin, none)

$$3x^2y^4 - 5x^6y^8 - 13y^2 + 12x = 0$$

x-axis symmetry

5) Find the equation of line passing through $(-3, 1)$ and perpendicular to $2x - 5y = 4$

$$2x - 5y = 4$$

$$\frac{-5y}{-5} = \frac{-2x + 4}{-5}$$

$$y = \frac{2}{5}x + \frac{4}{-5}$$

$$m_1 = \frac{2}{5}$$

6) $m_2 = -\frac{5}{2}$

point: $(-3, 1)$

slope: $m = -\frac{5}{2}$

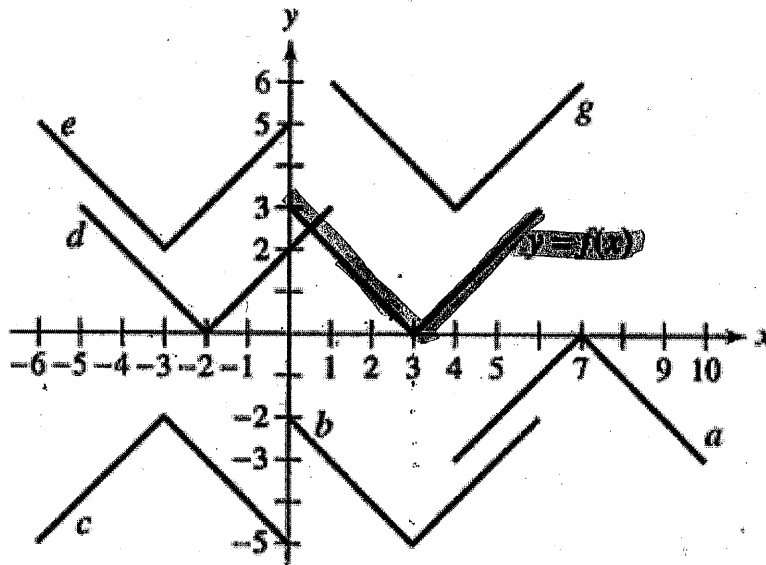
$$y - y_1 = m(x - x_1)$$

$$y - 1 = -\frac{5}{2}(x + 3)$$

Matching

match the function with its graph.

use the graph of $y = f(x)$ to



6a) $y = f(x + 5)$
shift left 5

d

6b) $y = f(x) - 5$
down 5

b

6c) $y = -f(-x) - 2$
reflect x, y , down 2

c

6d) $y = -f(x - 4)$
reflect, right 4

a

6e) $y = f(x + 6) + 2$
left 6, up 2

e

6f) $y = f(x - 1) + 3$
right 1, up 3

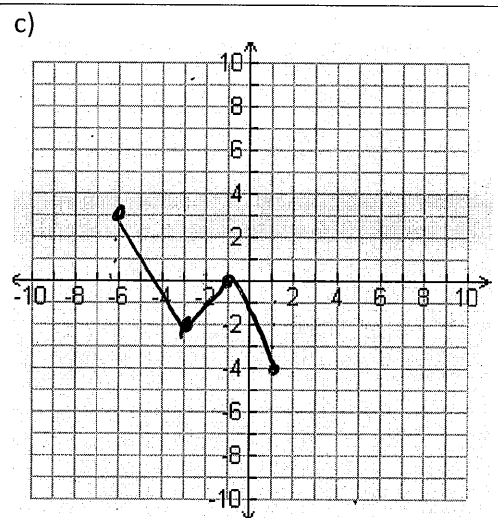
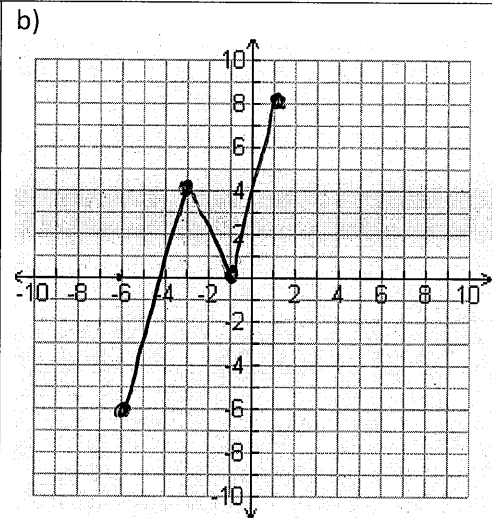
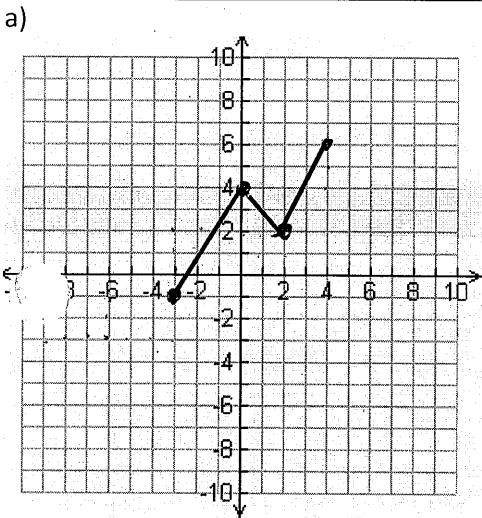
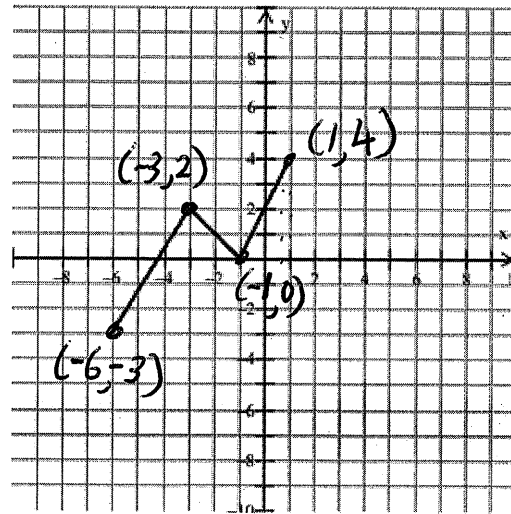
g

7) Use the graph of f shown in the figure to sketch the graph of each function

a) $f(x-3) + 2$, right 3, up 2

b) $2f(x)$ vert. stretch, factor of 2

c) $-f(x)$ reflect over x -axis



8) Given $f(x) = x^2 - 3x + 4$, find a simplified expression to represent $f(x+2) - f(x)$

$$\begin{aligned} & (x+2)^2 - 3(x+2) + 4 - (x^2 - 3x + 4) \\ & \underline{x^2 + 4x + 4} - \underline{3x - 6} + 4 - \underline{x^2} + \underline{3x} - 4 \end{aligned}$$

$$\boxed{4x - 2}$$

9) Find all points of intersection of the graphs of $x^2 - 2x - y = 6$ and $x - y = -4$

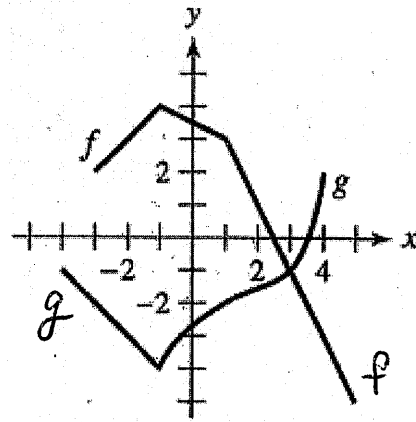
$$\begin{aligned} x^2 - 2x - (x+4) &= 6 & \left| \begin{array}{l} x^2 - 3x - 10 = 0 \\ (x-5)(x+2) = 0 \\ x = 5, -2 \end{array} \right. & \begin{array}{l} x+4 = y \end{array} \\ x^2 - 2x - x - 4 &= 6 \\ x^2 - 3x - 4 - 6 &= 0 \end{aligned}$$

$$\boxed{\begin{array}{l} (5, \underline{9}) \\ (-2, \underline{2}) \end{array}}$$

10)

Evaluating Composite

Functions Use the graphs of f and g to evaluate each expression. If the result is undefined, explain why.



$$(a) (f \circ g)(3) \quad f(g(3))$$

$$f(-1) = \boxed{4}$$

$$(b) g(f(2))$$

$$g(1) = \boxed{-2}$$

$$(c) g(f(5))$$

$$g(-5) = \text{undefined}$$

$$(d) (f \circ g)(-3)$$

$$f(g(-3)) = f(-2) = \boxed{3}$$

$$(e) (g \circ f)(-1)$$

$$g(f(-1)) = g(4) = \boxed{2}$$

$$(f) f(g(-1))$$

$$f[-4] = \text{undefined}$$

11) Evaluate the function as indicated

$$f(x) = \begin{cases} 3x - x, & x < -5 \\ 2 - x^2, & -5 < x \leq 0 \\ 5 - 2x, & x > 0 \end{cases}$$

$$a) f(-6) = 3(-6) - (-6)$$

$$= -18 + 6 = \boxed{-12}$$

$$b) f(0) = 2 - (0)^2 = \boxed{2}$$

$$c) f(2) = 5 - 2(2) = \boxed{1}$$

$$d) f(t^2 + 2) =$$

$$5 - 2(t^2 + 2)$$

$$= \boxed{5 - 2t^2 - 4}$$