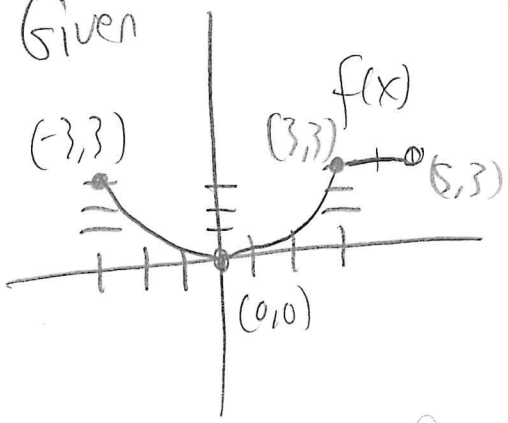


#24 on Review

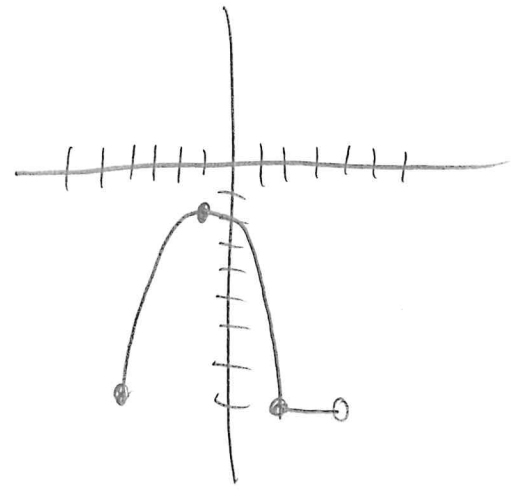
Given



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Graph $y = \underbrace{-}_{\text{flip on x-axis}} \underbrace{2}_{\text{stretch by factor 2}} f(x + \underbrace{1}_{\text{stretch 1 to the left}}) - \underbrace{2}_{\text{2 down}}$

flip on x-axis
 stretch by factor 2
 stretch 1 to the left
 2 down

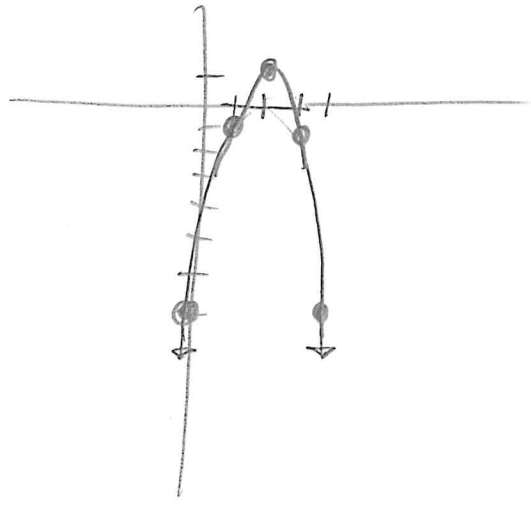


x	y	(x, y)
-3	-1	$(-4, -8)$
3	-1	$(2, -8)$
5	-1	$(4, -8)$
0	-1	$(-1, -2)$

27) a) $g(x) = -2(x-2)^2 + 1$

Parent function: $f(x) = x^2$

x	y	(x, y)
-2+2	$-2(4)+1$	$(0, -7)$
-1+2	$-2(1)+1$	$(1, -1)$
0+2	$-2(0)+1$	$(2, 1)$
1+2	$-2(1)+1$	$(3, -1)$
2+2	$-2(4)+1$	$(4, -7)$

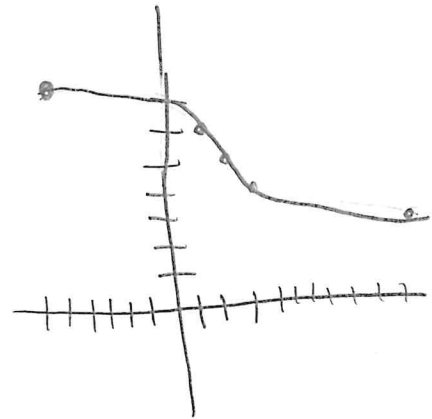


27) f) $P(x) = -\sqrt[3]{x-2} + 5$

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$y = \sqrt[3]{x}$

X	y	(x, y)
-8 + 2	$-(-2) + 5$	(-6, 7)
-1 + 2	$-(-1) + 5$	(1, 6)
0 + 2	$-(0) + 5$	(2, 5)
1 + 2	$-(1) + 5$	(3, 4)
8 + 2	$-(2) + 5$	(10, 3)

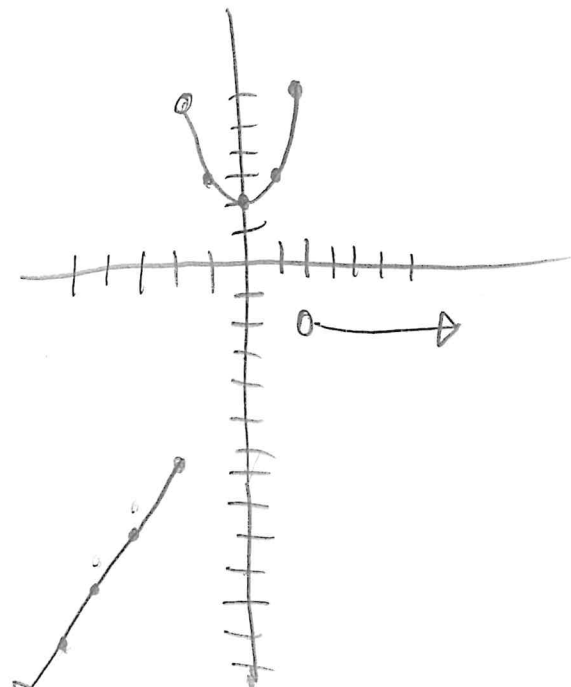


30) Graph

$$f(x) = \begin{cases} -2|x| - 3 & \text{for } x \leq -2 \\ x^2 + 2 & \text{for } -2 < x \leq 2 \\ -2 & \text{for } x > 2 \end{cases}$$

$f_1(x) = -2|x| - 3; x \leq -2$; $f_2(x) = x^2 + 2; -2 < x \leq 2$; $f_3(x) = -2; x > 2$

X	y	(x, y)	X	y	(x, y)
-2	-7	(-2, -7)	-2	6	(-2, 6)
-3	-9	(-3, -9)	-1	3	(-1, 3)
-4	-11	(-4, -11)	0	2	(0, 2)
-5	-13	(-5, -13)	1	3	(1, 3)
			2	6	(2, 6)



Any Problems after # 30 on
 Review Sheet will be on next test.

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$$3x - 2y = 14$$

$$2x = 7y - 2$$

Solve the system
 (Sub method)

$$3x - 2y = 14$$

$$3x = 14 + 2y$$

$$x = \frac{1}{3}(14 + 2y)$$

$$x = \frac{1}{3}(14 + 2(2))$$

$$x = \frac{1}{3}(18)$$

$$x = 6$$

$$2x = 7y - 2$$

$$2\left(\frac{1}{3}(14 + 2y)\right) = 7y - 2$$

$$\frac{28}{3} + \frac{4}{3}y = 7y - 2$$

$$28 + 4y = 21y - 6$$

$$34 = 17y$$

$$2 = y$$

(Elimination Method)

$$2(3x - 2y) = 2(14)$$

$$2x - 7y = 2$$

$$-3(2x - 7y) = -3(2)$$

$$\Rightarrow \begin{matrix} 6x - 4y = 28 \\ + (-6x + 21y = 6) \end{matrix}$$

$$17y = 34$$

$$y = 2$$

$$3x - 2y = 14$$

$$3x - 2(2) = 14$$

$$3x - 4 = 14$$

$$3x = 18$$

$$x = \frac{18}{3}$$

$$x = 6$$

* If you get

0 = 0 (variable gone),

Many Solutions

If you get $0 = a$, where $a \neq 0$

(ex: $0 = 34$), then No Solution

Preview
 of next

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week's material

$$(f+g)(x) = f(x) + g(x)$$

$$(f-g)(x) = f(x) - g(x)$$

$$(f \cdot g)(x) = f(x)g(x)$$

$$\left(\frac{f}{g}\right)(x) = \frac{f(x)}{g(x)}$$

$$(f \circ g)(x) = f(g(x))$$

ex! $f(x) = x + 3$

$$g(x) = x^2 + 6x + 9$$

$$\begin{aligned} * g(x) &= (x+3)(x+3) \\ &= (x+3)^2 \end{aligned}$$

$$\begin{aligned} (f+g)(x) &= x+3 + (x^2 + 6x + 9) \\ &= \boxed{x^2 + 7x + 12} \end{aligned}$$

$$\begin{aligned} (f-g)(x) &= x+3 - (x^2 + 6x + 9) \\ &= x+3 - x^2 - 6x - 9 \\ &= \boxed{-x^2 - 5x - 6} \end{aligned}$$

$$\begin{aligned} (f \cdot g) &= (x+3)(x^2 + 6x + 9) = x^3 + 6x^2 + 9x + 3x^2 + 18x + 27 \\ &= \boxed{x^3 + 9x^2 + 27x + 27} \end{aligned}$$

* or $(x+3)(x+3)^2 = (x+3)^3 = \dots = \uparrow$

$$\left(\frac{f}{g}\right)(x) = \frac{x+3}{x^2 + 6x + 9} = \frac{\cancel{x+3}}{\cancel{(x+3)}(x+3)} = \boxed{\frac{1}{x+3}}$$

$$(f \circ g)(x) = f(x^2 + 6x + 9) = (x^2 + 6x + 9) + 3 = \boxed{x^2 + 6x + 12}$$