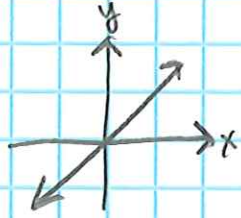


1.4 Piecewise Fxns

9/28/16 (1)
PreCalc

$$f(x) = x$$

(linear)

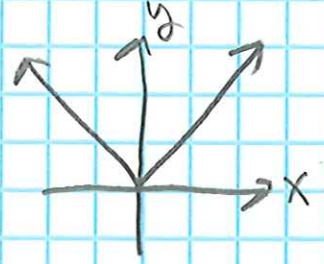


$$D: (-\infty, \infty)$$
$$R: (-\infty, \infty)$$

$$f(x) = |x|$$

(absolute value)

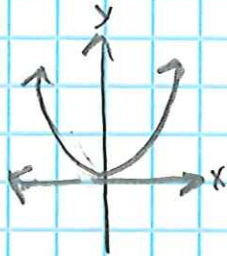
$$D: (-\infty, \infty)$$
$$R: [0, \infty)$$



$$f(x) = x^2$$

(quadratic)

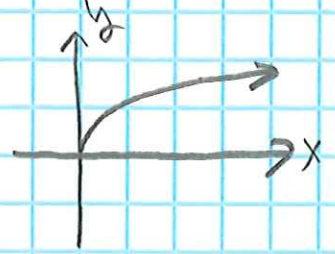
$$D: (-\infty, \infty)$$
$$R: [0, \infty)$$



$$f(x) = \sqrt{x}$$

(square root)

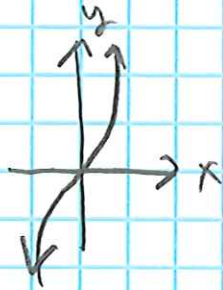
$$D: [0, \infty)$$
$$R: [0, \infty)$$



$$f(x) = x^3$$

(cubic)

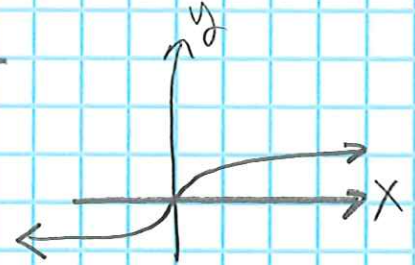
$$D: (-\infty, \infty)$$
$$R: (-\infty, \infty)$$



$$f(x) = \sqrt[3]{x}$$

(cube root)

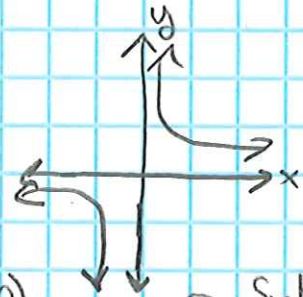
$$D: (-\infty, \infty)$$
$$R: (-\infty, \infty)$$



$$f(x) = \frac{1}{x}$$

(rational)

$$D: (-\infty, 0) \cup (0, \infty)$$
$$R: (-\infty, 0) \cup (0, \infty)$$



$$D: \{x \mid x \neq 0\}$$
$$x \in \mathbb{R} \mid x \neq 0$$

P.W. fns are defined using different eqns on different parts of its domain.

$$f(x) = \begin{cases} -2x + 1 & \text{if } -3 \leq x < 1 \\ 2 & \text{if } x = 1 \\ x^2 & \text{if } x > 1 \end{cases}$$

① find $f(-2), f(1), f(2)$

$$f(-2) = -2(-2) + 1 = 4 + 1 = 5 \quad "(-2, 5)"$$

$$f(1) = 2 \quad "(1, 2)"$$

$$f(2) = (2)^2 = 4 \quad "(2, 4)"$$

② Determine the domain of f
 $[-3, \infty)$

③ locate any intercepts

to find
y-int, set
x=0

$$f(0) = -2(0) + 1 = 1 \quad \text{y-int @ } y=1$$

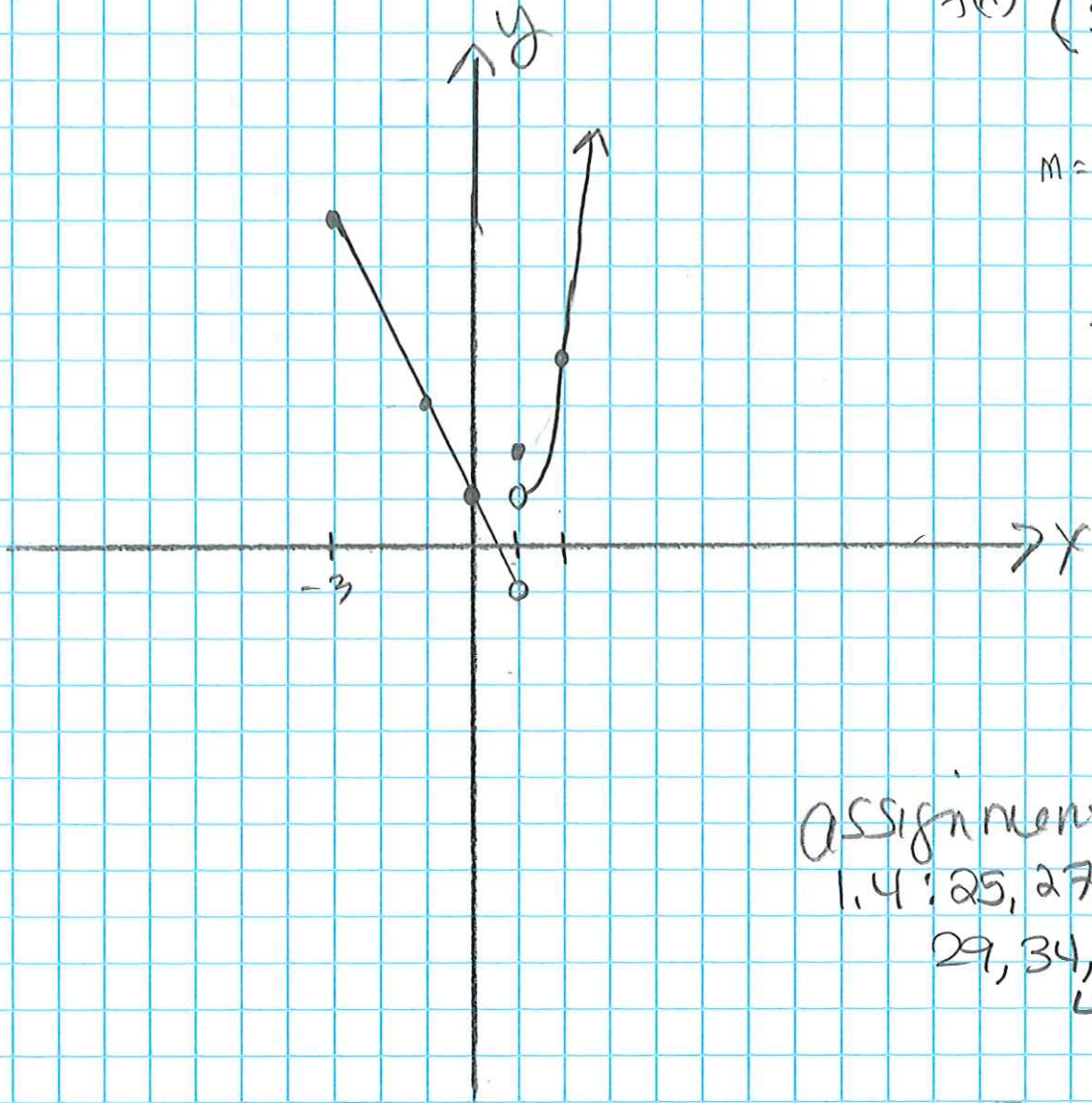
(4) Graph the P.W. Fxn

(3)

$$f(x) = \begin{cases} -2x+1 & -3 \leq x < 1 \\ 2 & x=1 \\ x^2 & x > 1 \end{cases}$$

$$m = -2 = \frac{-2}{1} = \frac{-2}{1}$$

x	y
2	2 ² = 4
1	1



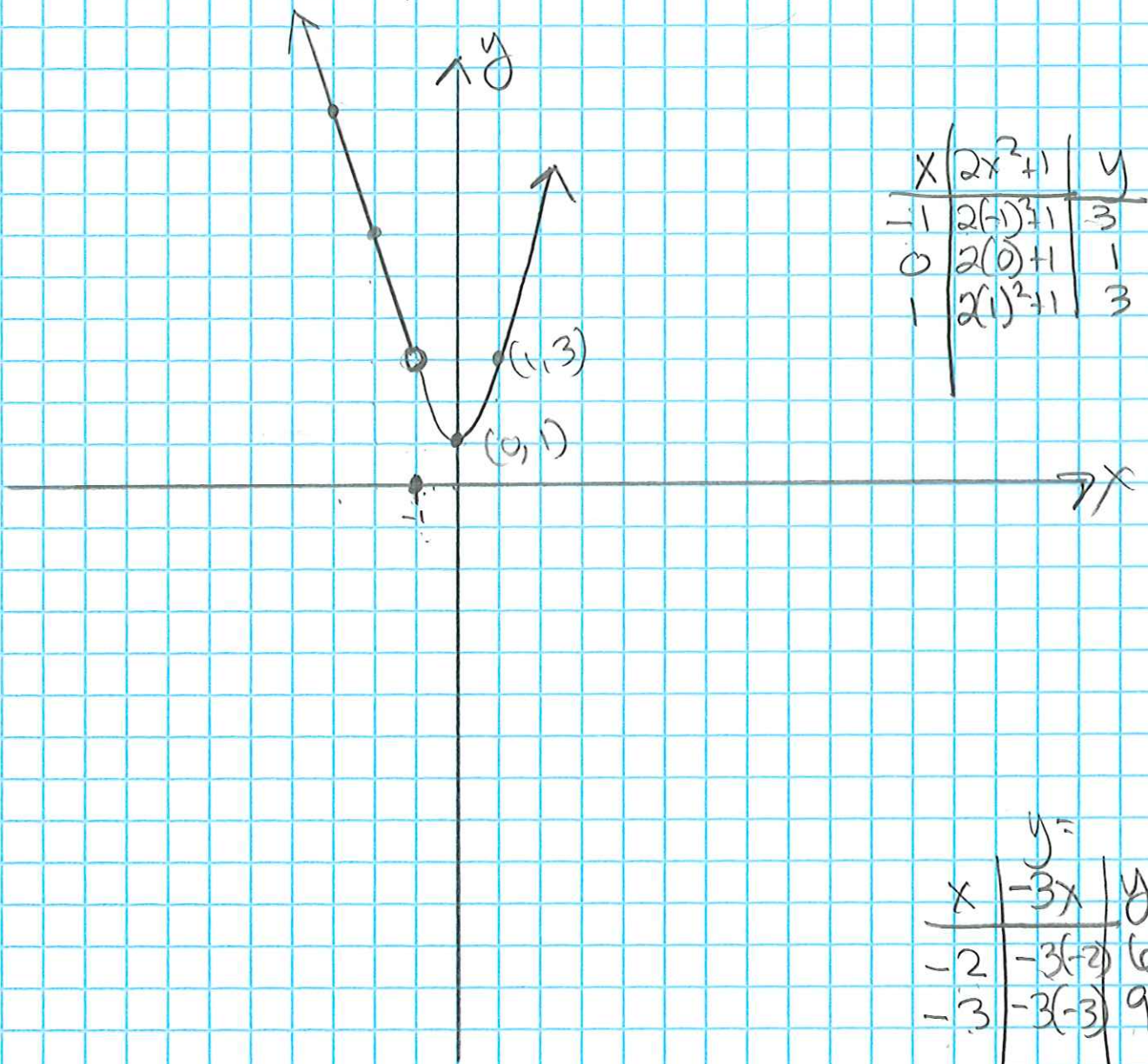
Assignment:

1, 4, 25, 27, 28,

29, 34, 41, 42,
44



$$(26) f(x) = \begin{cases} -3x & x < -1 \\ 0 & x = -1 \\ 2x^2 + 1 & x > -1 \end{cases}$$



x	$2x^2 + 1$	y
-1	$2(-1)^2 + 1$	3
0	$2(0)^2 + 1$	1
1	$2(1)^2 + 1$	3

x	$-3x$	y
-2	$-3(-2)$	6
-3	$-3(-3)$	9

$(-2, 6), (-3, 9)$