BONUS In-Class Assignment
GRAPHING & DOMAIN & RANGE
Oct 19th 2011
SOLUTIONS

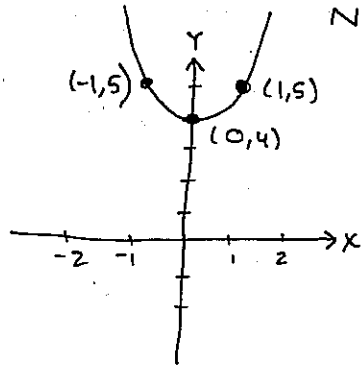
For the following functions
- A- Graph; Providing all important points
- B- Give Domain & Range

(1) $Y = X^2 + 4$

(A) y-intercept
$x=0 \quad y=4$
$(0,4)$

x-intercepts
$x = \frac{-0 \pm \sqrt{0-4(1)4}}{2(1)}$
NONE

VERTEX
$x = \frac{-b}{2a} = \frac{0}{2(1)} = 0$
$y = 4$



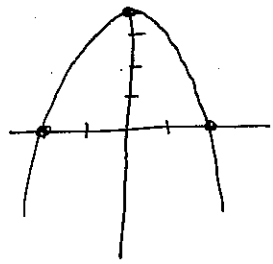
(B) DOMAIN $\mathbb{R}$
RANGE $[4, \infty)$

$y = -x^2 + 4$

x intercepts
$0 = 4 - x^2$
$= (2-x)(2+x)$
$(2,0)$ & $(-2,0)$

y-intercept
$(0,4)$

VERTEX
$x = \frac{-b}{2a} = 0$

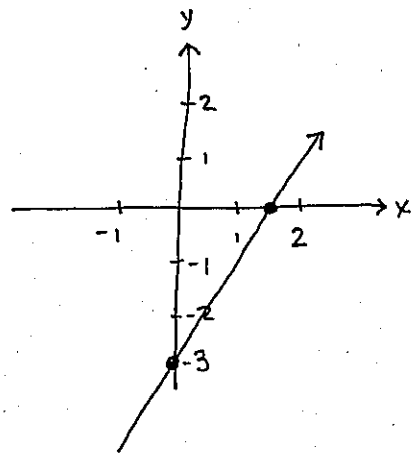


DOMAIN : $\mathbb{R}$
RANGE :
$(-\infty, 4]$

(2) $2x - y = 3$

(A) x-intercept
$y=0 \quad 2x = 3$
$x = 3/2$
$(3/2, 0)$

y-intercepts
$x=0 \quad -y = 3$
$y = -3$
$(0,-3)$



(B) DOMAIN $\mathbb{R}$
RANGE $\mathbb{R}$

(3) $y = x^2 + 2x + 1$

(A) y-INTERCEPT

$x = 0 \quad y = 1$

$(0, 1)$

x-INTERCEPTS

$y = (x+1)^2$

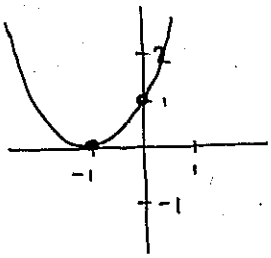
$0 = (x+1)^2$

$x = -1 \quad (-1, 0)$

VERTEX

$x = \frac{-b}{2a} = \frac{-2}{2} = -1$

$(-1, 0)$



(B) DOMAIN $\mathbb{R}$

RANGE $[0, \infty)$

(4) $y = 3\sqrt{2x-1} - 3$

(A) VERTEX

$x \Rightarrow \quad 2x - 1 = 0$

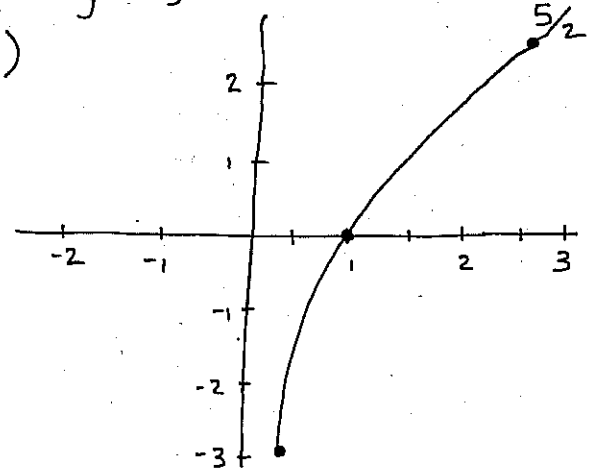
$2x = 1$

$x = \frac{1}{2} \quad y = -3$

$(\frac{1}{2}, -3)$

TABLE OF VALUES

x	$y = 3\sqrt{2x-1} - 3$
1	$y = 3(1) - 3 = 0$
$\frac{5}{2}$	$y = 3\sqrt{2(\frac{5}{2})-1} - 3 = 3$



(B) DOMAIN $[\frac{1}{2}, \infty)$

RANGE $[-3, \infty)$

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

(A) VERTEX

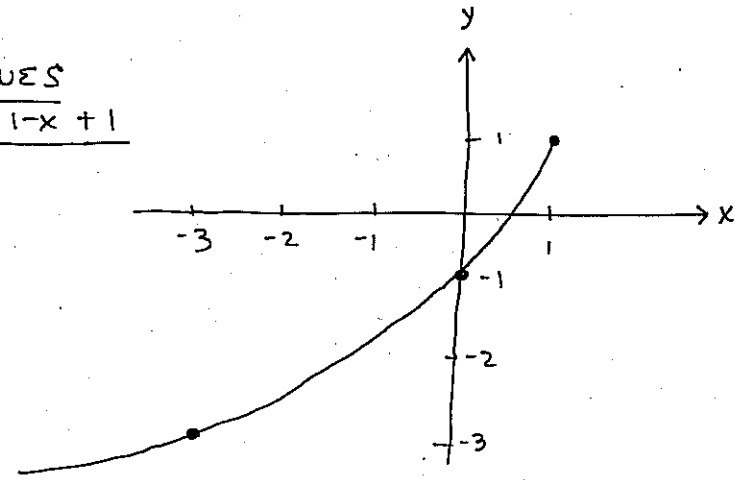
$1 - x = 0$

$x = 1$

$y = 1 \quad (1, 1)$

TABLE OF VALUES

x	$y = -2\sqrt{1-x} + 1$
0	-1
-3	-3



(B) DOMAIN

$(-\infty, 1]$

RANGE

$(-\infty, 1]$