Radical Functions

Ex) Graph $y = 3\sqrt{-(x - 1)}$

$\underset{a}{}\ \underset{b}{\phantom{\sqrt{}}}\ \underset{c}{}$
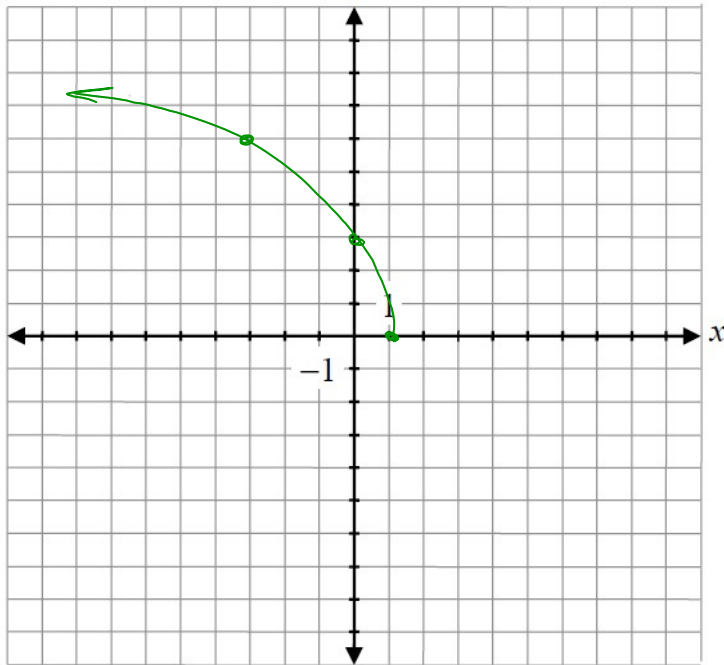
$(x, y) \quad (-x+1, 3y)$

$(0, 0) \quad (1, 0)$

$(1, 1) \quad (0, 3)$

$(4, 2) \quad (-3, 6)$

Domain: $\{x \mid x \leq 1\}$

Range: $\{y \mid y \geq 0\}$

Ex) Graph $y - 3 = -\sqrt{2x}$ $\longrightarrow y = -f(2x) + 3$

$y = -\sqrt{2x} + 3$
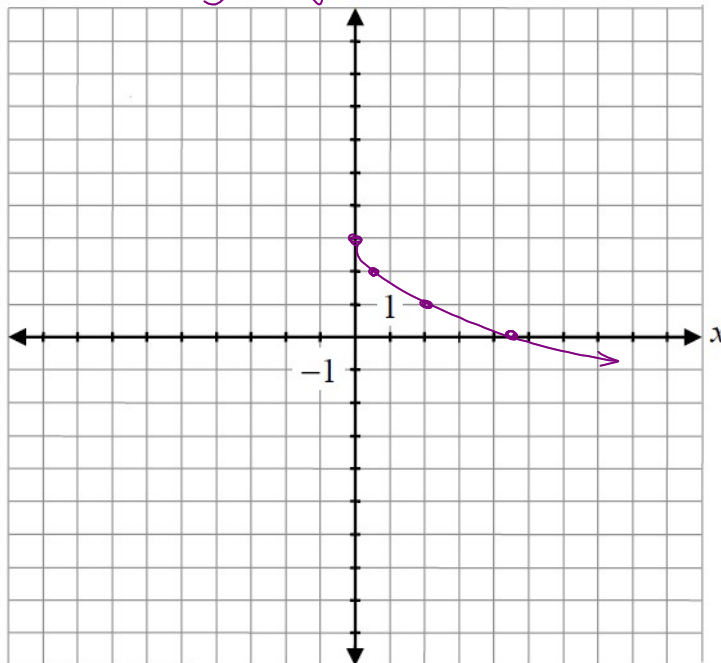
$(x, y) \rightarrow \left(\dfrac{x}{2}, -y+3\right)$

$E\ (0, 0) \quad (0, 3)$

$(1, 1) \quad (\frac{1}{2}, 2)$

$(4, 2) \quad (2, 1)$

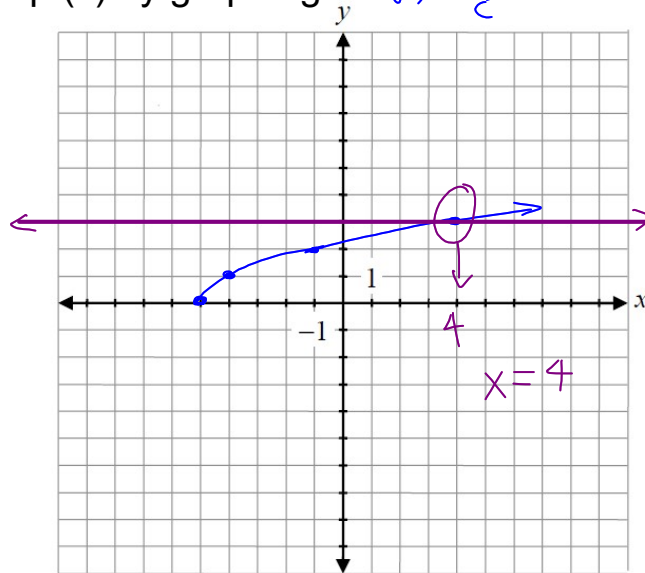$A\ (9, 3) \quad (4\frac{1}{2}, 0)$

Domain: $[0, \infty)$

Range: $(-\infty, 3]$

Solving Radical Equations

Ex) a) Determine the root(s) of $\sqrt{x+5} - 3 = 0$

b) Find the x-intercept(s) by graphing $\sqrt{x+5} = 3$

a) $\sqrt{x+5} - 3 = 0$

$\left(\sqrt{x+5}\right)^2 = (3)^2$

$x + 5 = 9$

$x = 4$

$x = 4$

The roots of a radical equation are the same as the x-intercepts of the graph of the equation.

Ex) Solve the equation $\sqrt{x+5} = x + 3$ algebraically and graphically.

$\left(\sqrt{x+5}\right)^2 = (x+3)^2$

$x + 5 = x^2 + 6x + 9$

$0 = x^2 + 5x + 4$

$0 = (x+4)(x+1)$

$\cancel{x = -4}$ $\boxed{x = -1}$

Green WS

Quiz → Monday
(4 types → reciprocal
absolute value
log + exponent)

No radicals on quiz