PR154.

11. $\sqrt{x-3} + x = 5$ (−x, −x)

$(\sqrt{x-3})^2 = (5-x)^2$ $(5-x)(5-x)$

$x - 3 = 25 - 10x + x^2$ (−x, +3, +3, −x)

$x^2 - 11x + 28 = 0$

$(x-7)(x-4) = 0$

$x - 7 = 0$ $x - 4 = 0$

~~$x = 7$~~ $x = 4$

14. PR154

$P = 40 - .0001x$

$R = x \cdot P$

$R = x(40 - .0001x)$

$x(40 - .0001x) = 2{,}000{,}000$

$-.0001x^2 + 40x = 2{,}000{,}000$

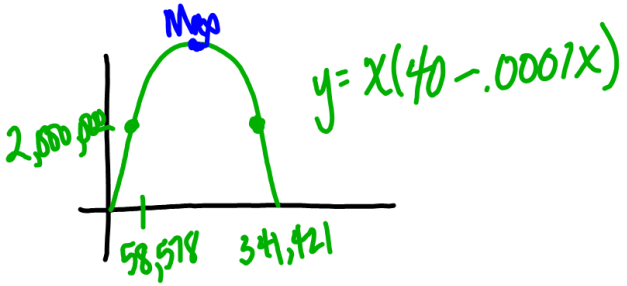
$-.0001x^2 + 40x - 2{,}000{,}000 = 0$

$.0001x^2 - 40x + 2{,}000{,}000 = 0$

$$x = \frac{40 \pm \sqrt{(-40)^2 - 4(.0001)(2{,}000{,}000)}}{2(.0001)}$$

$$x = \frac{40 \pm \sqrt{800}}{.0002}$$

$x = 341{,}421 \qquad x = 58{,}578$



PR154

17. $\frac{x+3}{x+7} > 2$ (-2, -2)

$$\frac{x+3}{x+7} - \frac{2x+14}{x+7} > 0$$

$$\frac{-x-11}{x+7} \geq 0$$ Positive

Critical Value

$-x-11=0$

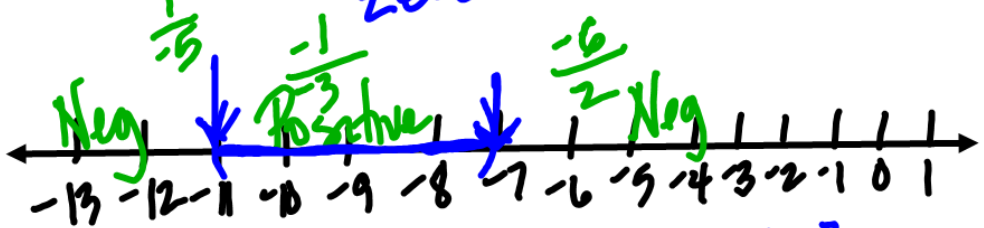
$-11=x$

Zero

$x+7=0$

$x=-7$

undefined



$(-11, -7)$

$-11 < x < -7$

Domain

$\sqrt{x-8}$

$x-8 \geq 0$

$x \geq 8$

$\frac{2}{x+4}$

$x \neq -4$