Solve.

$y = 2x^2 - 3x + 1$

$-y = -7x + 7$

$0 = 2x^2 - 10x + 8$

Fact. 4, $-1, -4$

$2(x^2 - 5x + 4)$

$2(x-1)(x-4) = 0$

$x - 1 = 0$ $\quad x - 4 = 0$

$+1 \; +1 \quad +4 \; +4$

$x = 1 \quad x = 4$

$y = 7x - 7$

$y = 7(1) - 7 = 0$

Quad

$x = \dfrac{10 \pm \sqrt{100 - 64}}{2(2)}$

$x = \dfrac{10 \pm \sqrt{36}}{4}$ $\quad 6$

$\dfrac{10+6}{4}$ $\quad \dfrac{10-6}{4}$

$\dfrac{16}{4}$ $\quad \dfrac{4}{4}$

$x = 4$ $\quad , x = 1$

$y = 7(4) - 7$

$28 - 7 = 21$

$(1, 0) \quad (4, 21)$

$x^2 - x = y$

$x + y = 25$

sub

$x + (x^2 - x) = 25$

$\sqrt{x^2} = \sqrt{25}$

$x = 5, -5$

(5, 20)

(-5, 30)

$x + y = 25$

$5 + y = 25$

$-5 \quad -5$

$y = 20$

$-5 + y = 25$

$+5 \quad +5$

$y = 30$

Solve.

$7x^2 = x + 1$

$-7x^2 \quad -7x^2$

$0 = -7x^2 + x + 1$

$a = -7, \; b = 1, \; c = 1$

Quad

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow \frac{-1 \pm \sqrt{1 + 28}}{2(-7)} = \frac{-1 \pm \sqrt{29}}{-14}$$

$$\frac{-1 \pm 5.39}{-14}$$

$$\frac{-1 + 5.39}{-14} = \frac{4.39}{-14} = -.31 \qquad \frac{-1 - 5.39}{-14} = \frac{-6.39}{-14} = .46$$

$x = \boxed{-.31, .46}$

$c=\left(\frac{b}{2}\right)^2$ Complete the square

b^2-2b

$\left(\frac{-2}{2}\right)^2=(-1)^2=1$

b^2-2b $\boxed{+1}$

$\boxed{1}$

$x^2+22x+c$

$c=\boxed{121}$

$\left(\frac{22}{2}\right)^2=(11)^2=121$

$$x(x-12)=0$$

$x=0$

$x-12=0$

$+12 \quad +12$

$x=12$

$x=0,12$

$(x-7)(4x+3)=0$

$x-7=0$

$+7 \quad +7$

$x=7$

$4x+3=0$

$-3 \quad -3$

$\frac{4x}{4}=\frac{-3}{4}$

$x=-3/4$

$x^2 - 7x + 10 = 0$

10: $-2, -5$

$(x-2)(x-5)=0$

$x-2=0$ $\quad$ $x-5=0$

$+2 \quad +2$ $\quad$ $+5 \quad +5$

$x=2 \quad x=5$

$3x^2+10x+3=0$

9: $1, 9$

$3x^2+1x+9x+3=0$

$x(3x+1)+3(3x+1)=0$

$(3x+1)(x+3)=0$

$3x+1=0$ $\quad$ $x+3=0$

$-1 \quad -1$ $\quad$ $-3 \quad -3$

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

$x=-\frac{1}{3}$

$\sqrt{x^2} = \sqrt{81}$

$x = 9, -9$

$x^2 - 4 = 0$

$+4 \quad +4$

$\sqrt{x^2} = \sqrt{4}$

$x = 2, -2$

$7x^2 - 7 = 0$

$+7 \quad +7$

$\frac{7x^2}{7} = \frac{7}{7}$

$\sqrt{x^2} = \sqrt{1}$

$x = 1, -1$

$x^2 + 25 = 0$

$-25 \quad -25$

$\sqrt{x^2} = \sqrt{-25}$

no solution

$x^2 = 12$

$x = 3.46, -3.46$

Find axis of symmetry

Find vertex.

Graph

$y = 2x^2 - 8x + 1$

$x = \frac{-b}{2a} = \frac{8}{2 \cdot 2} = 2$

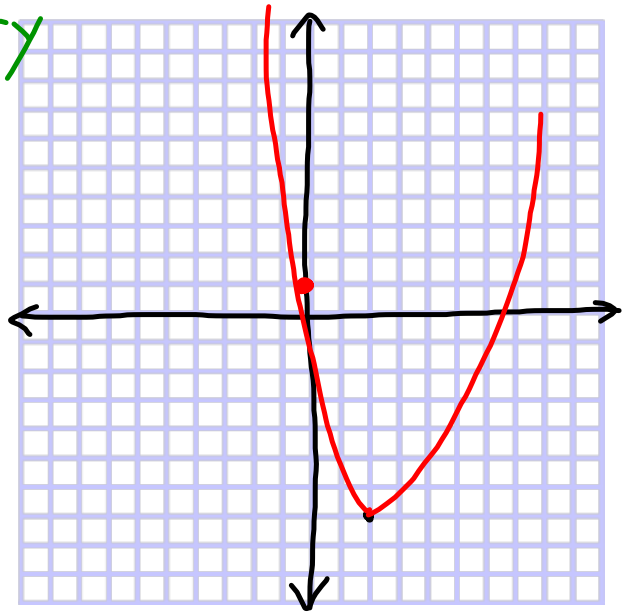
axis: $x = 2$

$y = 2(2)^2 - 8(2) + 1$

$y = 8 - 16 + 1$

$y = -7$

V: $(2, -7)$



Graph:

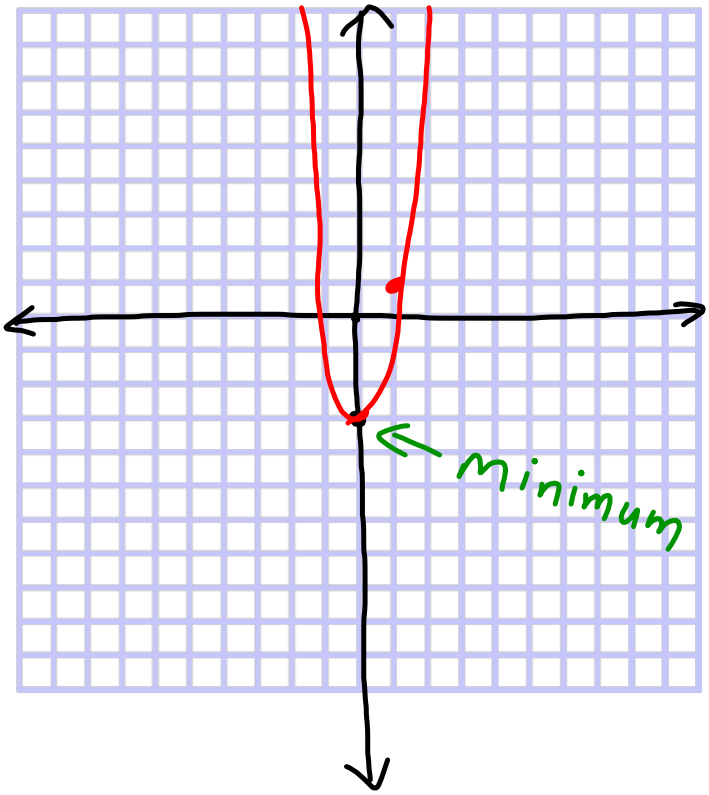
$y = 4x^2 - 3$

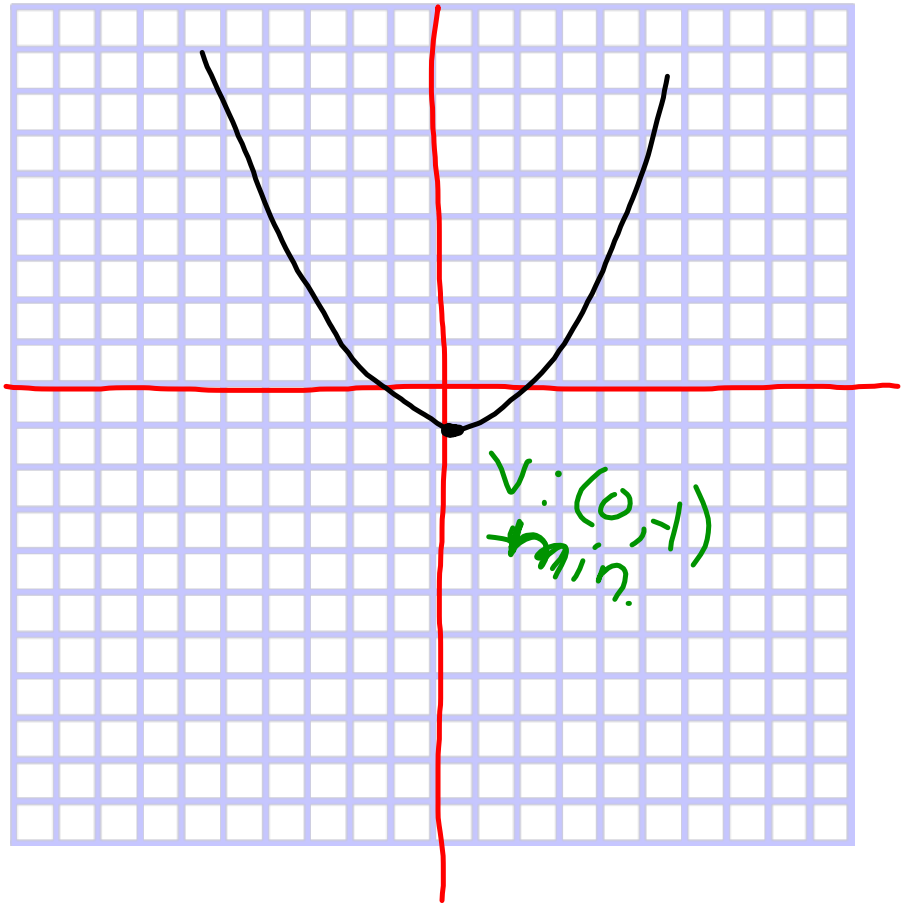
V: (0, -3)

$y = 4(1)^2 - 3$

$y = 1$

(1, 1)




V: (0, -1)
min.