

QUADRATICS REVIEW

#1-3 No graphing calculator

Quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Projectile Motion

$$h(t) = \frac{1}{2}at^2 + V_0t + S_0$$

$$a = \underline{-9.8 \text{ m/s}^2} \quad a = \underline{-32 \text{ ft/s}^2}$$

Find vertex.

Standard form

$$x = -b/2a$$

y = sub in
x

Intercept Form

$$y = a(x-p)(x-q)$$

$$x = \frac{p+q}{2}$$

y = sub in x

Find vertex:

If maximizing or
minimizing

$$y > -3(x-7)^2 + 2$$

Vertex: (7, 2)

0	0
1	-3
2	-12
3	-27

down

line of symmetry: $x = 7$

Width: Narrow

$$y = \frac{2}{5}x^2 - 8x + 1$$

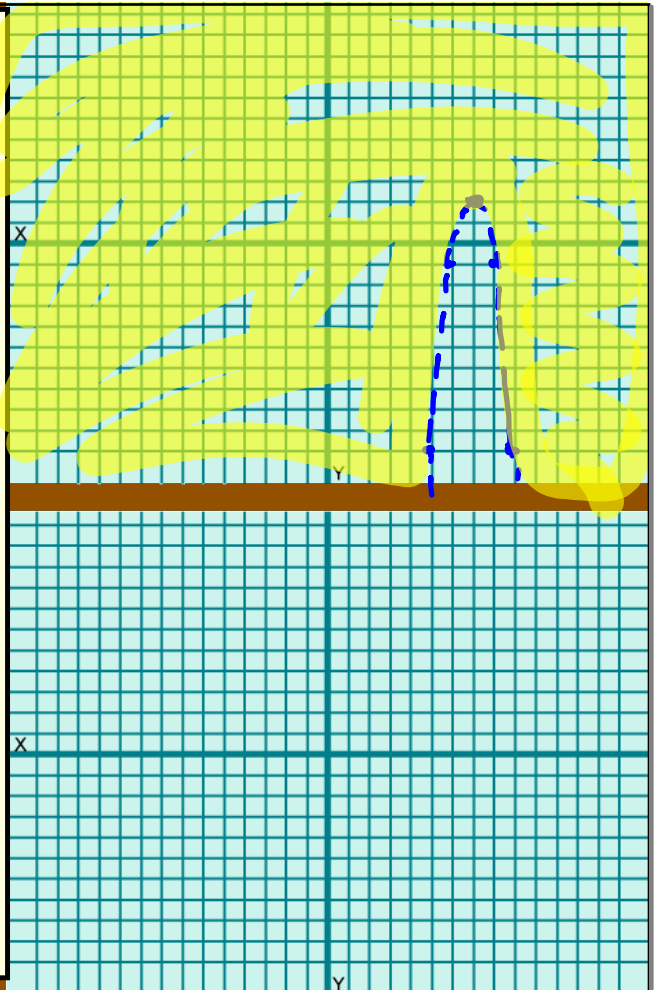
Vertex: $x = -\frac{b}{2a} = \frac{8}{2(2/5)} = \frac{8}{2/5} = 8 \cdot \frac{5}{1} = 10$

$$y = \frac{2}{5}(10)^2 - 8(10) + 1$$

$\frac{2}{5} \cdot 100$

$$40 - 80 + 1 = -39$$

$$(10, -39)$$



$$y = 1(x+10)(x-4)$$

$$x+10=0 \quad x-4=0$$

$$x = -10 \quad x = 4 \quad \leftarrow \text{x-intercepts}$$

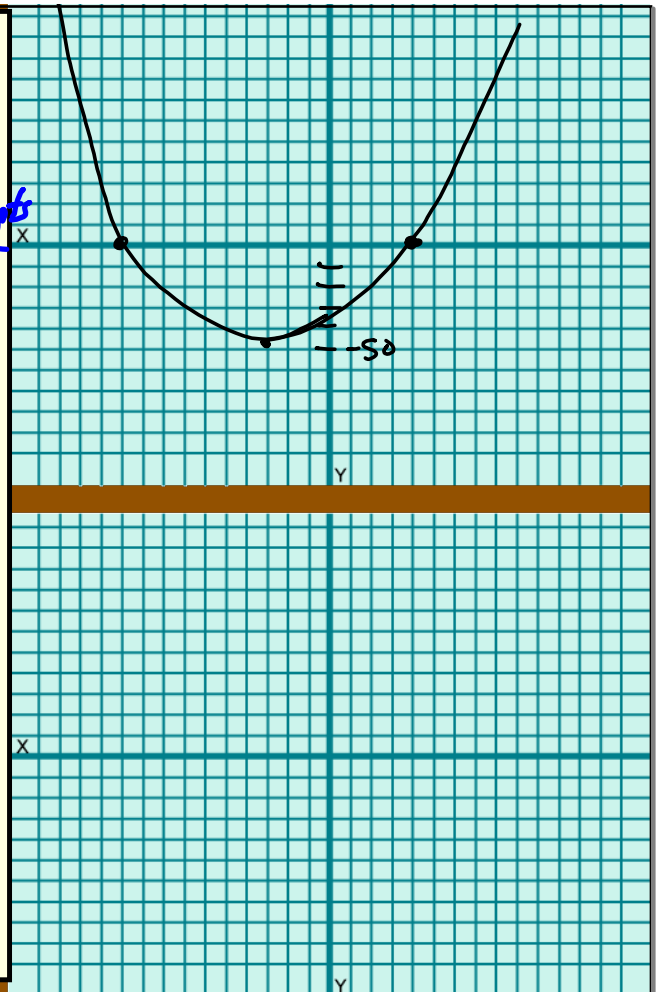
$$\text{Vertex } x: x = \frac{-10+4}{2} = -3$$

$$y = 1(-3+10)(-3-4)$$

$$= +7 \cdot -7 = -49$$

$$(-3, -49)$$

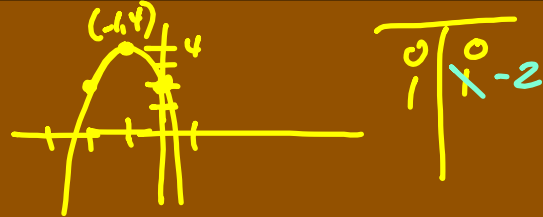
$$\text{line of sym: } x = -3$$



3/ Start with

$$y = a(x-h)^2 + k$$

$$y = -2(x+1)^2 + 4$$



b) Vertex: $(6, -8)$
 Point: $(3, -5)$
 x, y

-5

$$y = a(x-6)^2 - 8$$

$$-5 = a(3-6)^2 - 8$$

$$-5 = \frac{9a}{9} - 8$$

$$-3 = a$$

$$y = \frac{1}{3}(x-6)^2 - 8$$

SOLVE.

4/ Solve by factoring.

$$3n^2 = 24n$$

$$3n^2 - 24n = 0$$

$$3n(n - 8) = 0$$

$$\begin{array}{l} 3n = 0 \quad n - 8 = 0 \\ \swarrow \quad \searrow \\ n = 0 \quad n = 8 \end{array}$$

Set eq = to 0:

c) $21 + 11x - 2x^2 = 0$

$$0 = 2x^2 - 11x - 21 \quad \begin{array}{l} 1 \quad 21 \\ \quad 7 \end{array}$$

$$0 = (2x + 3)(x - 7)$$

$\begin{array}{c} +3x \\ -14x \end{array}$

$$2x + 3 = 0 \quad x - 7 = 0$$

$$\cancel{2x} = -\frac{3}{2} \quad x = 7$$

5/ COMPLETING the Square.

$$\frac{5x^2}{5} - \frac{40x}{5} + \frac{10}{5} = \frac{0}{5}$$

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

$$x^2 - 8x + 16 = -2 + 16$$

$$\sqrt{(x-4)^2} = \sqrt{14}$$

$$x-4 = \pm \sqrt{14}$$

$$x = 4 \pm \sqrt{14}$$

#7- Graph on calculator
Find Zeros

#8

Roots: $-4, \frac{3}{5}$

Find eq.

Do factoring prob backwards

$$x = -4 \quad x = \frac{3}{5}$$

$$x+4=0 \quad 5x=3$$

$$5x-3=0$$

$$(x+4)(5x-3)=0$$

$$5x^2 - 3x + 20x - 12 = 0$$

$$5x^2 + 17x - 12 = 0$$