T-A2 Algebra 2 Week 25 3/21

1.) $x^2 - 12x + 32 = 0$

identity of sign — same sign

y-int

$-8 * -4 = 32$

$-8 + -4 = -12$

$(x-8)(x-4) = 0$

$x-8=0$ $\quad x-4=0$

$+8 \quad +8 \quad +4 \quad +4$

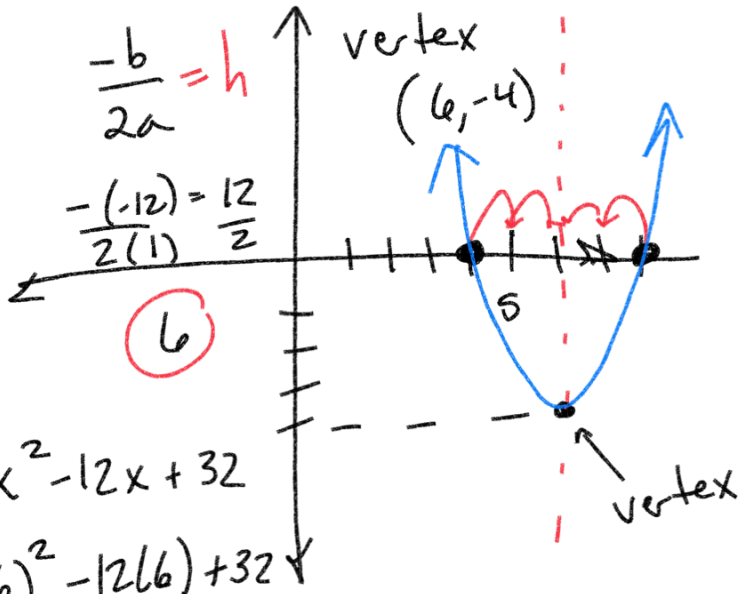
$\boxed{x=8}$ $\quad \boxed{x=4}$

symmetry

$\frac{-b}{2a} = h$

$\frac{-(-12)}{2(1)} = \frac{12}{2} = 6$

vertex $(6,-4)$



$x^2 - 12x + 32$

$(6)^2 - 12(6) + 32$

$36 - 72 + 32$

$-36 + 32 = -4$

Big — different

2.) $x^2 - 6x - 16 = 0$

$-8 * 2 = -16$

$-8 + 2 = -6$

$(x-8)(x+2) = 0$

$x-8=0$ $\quad x+2=0$

$+8 \quad +8 \quad -2 \quad -2$

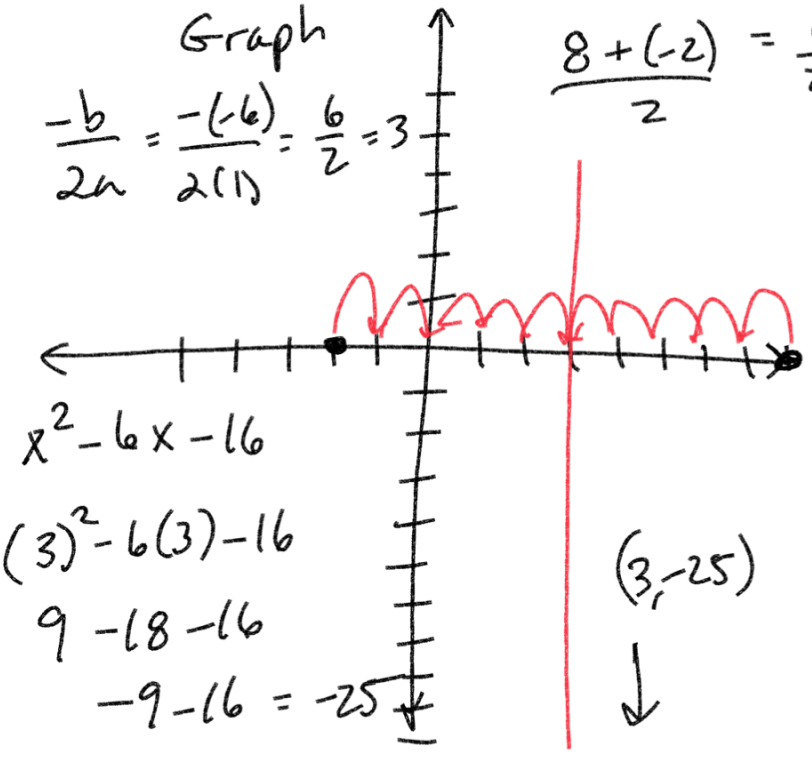
$\boxed{x=8}$ $\quad \boxed{x=-2}$

Find zeros

Graph

$\frac{-b}{2a} = \frac{-(-6)}{2(1)} = \frac{6}{2} = 3$

$\frac{8+(-2)}{2} = \frac{6}{2} = 3$



$x^2 - 6x - 16$

$(3)^2 - 6(3) - 16$

$9 - 18 - 16$

$-9 - 16 = -25$

$(3,-25)$

3.) $x^2 + 10x + 3 = -18$

$+18 \quad +18$

$x^2 + 10x + 21 = 0$

(+) (same)

$7 * 3 = 21$

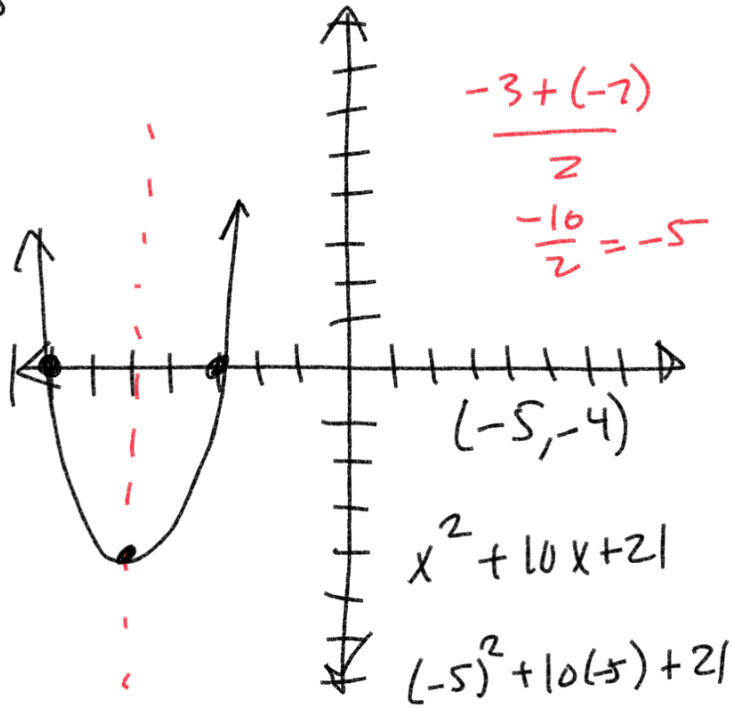
$7 + 3 = 10$

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

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

$-7 \quad -7 \quad -3 \quad -3$

$\boxed{x=-7} \quad \boxed{x=-3}$



4.) $x^2 - 2x + 35 = 50$

$-50 \quad -50$

$x^2 - 2x - 15 = 0$

(dif)

$-5 * 3 = -15$

$-5 + 3 = -2$

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

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

$+5 \quad +5 \quad -3 \quad -3$

$\boxed{x=5} \quad \boxed{x=-3}$

$\frac{5+(-3)}{2} = \frac{2}{2} = 1$

vertex

$(1,-16)$

$x^2 - 2x - 15$

$(1)^2 - 2(1) - 15$

$1 - 2 - 15 = -16$

$\frac{2x^2}{2} + \frac{18x}{2} + \frac{40}{2} = \frac{0}{2}$

$2(x^2 + 9x + 20) = 0$

$\underline{4} * \underline{5} = 20$

$\underline{4} + \underline{5} = 9$

$2(x+4)(x+5) = 0$

$x = -4, -5$

$\frac{3x^2}{3} - \frac{30x}{3} + \frac{63}{3} = \frac{0}{3}$

$3(x^2 - 10x + 21) = 0$

$\underline{-7} * \underline{-3} = 21$

$\underline{-7} + \underline{-3} = -10$

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

$x = 7, 3$

$x^2 - 49 = 0$

$+49 \quad +49$

$\sqrt{x^2} = \sqrt{49}$

$x = \pm 7$

Difference of squares

$x^2 - 49 = 0$

$(x)^2 - (7)^2$

$x^2 - 49$

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

FOIL

± 7

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

$-7 \quad -7 \quad +7 \quad +7$

$x = -7 \quad x = 7$

$x^2 - 7x + 7x - 49$

$x^2 - 49$

$x^2 - 81 = 0$

$(x+9)(x-9) = 0$

$\boxed{x = \pm 9}$

$x^2 - 81 = 0$

$+81 \quad +81$

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

$x = \pm 9$

$\frac{2x^2}{2} - \frac{18}{2} = \frac{0}{2}$

$2(x^2 - 9) = 0$

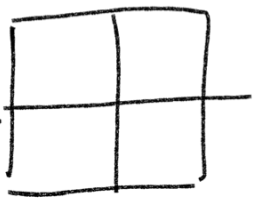
$2(x+3)(x-3) = 0$

$\boxed{x = \pm 3}$

$\S \quad \boxed{2}x^2 - x\boxed{-45} = 0$

2	-45
2 · 1	-45 · 1
	-9 · 5
	-15 · 3
	-1 · 45
	-5 · 9
	-3 · 15

Quadratic Formula



$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \qquad a = 2 \quad b = -1 \quad c = -45$$

$$\frac{-(-1) \pm \sqrt{(-1)^2 - (4)(2)(-45)}}{2(2)} = \frac{1 \pm \sqrt{1 + 360}}{4}$$

$$\frac{1 \pm \sqrt{1+360}}{4} = \frac{1 \pm \sqrt{361}}{4} = \frac{1 \pm 19}{4}$$

$$\frac{1+19}{4} \qquad \frac{1-19}{4}$$

$$\frac{20}{4} = \boxed{5} \qquad \frac{-18}{4} = \boxed{\frac{-9}{2}}$$

$x^2 - 6x - 16$

$$\frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

$$\frac{-(-6) \pm \sqrt{(-6)^2-4(1)(-16)}}{2(1)}$$

$$\frac{6 \pm \sqrt{36+64}}{2} \qquad \frac{6 \pm \sqrt{100}}{2} = \frac{6 \pm 10}{2}$$

$$\frac{6+10}{2} = \frac{16}{2} = \boxed{8}$$

$$\frac{6-10}{2} = \frac{-4}{2} = \boxed{-2}$$