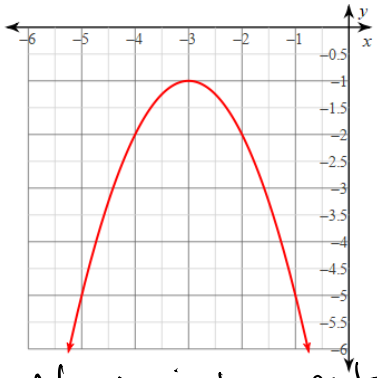
Algebra 1 **9.1, 9.2, 9.4 Review Worksheet** **Name** KEY

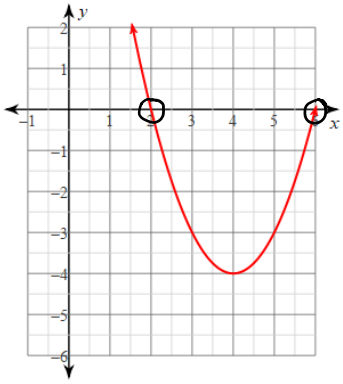
1. Given the graphs below, state the x-intercepts and zeros of the function.

a)



No x-intercepts/ zeros

B)

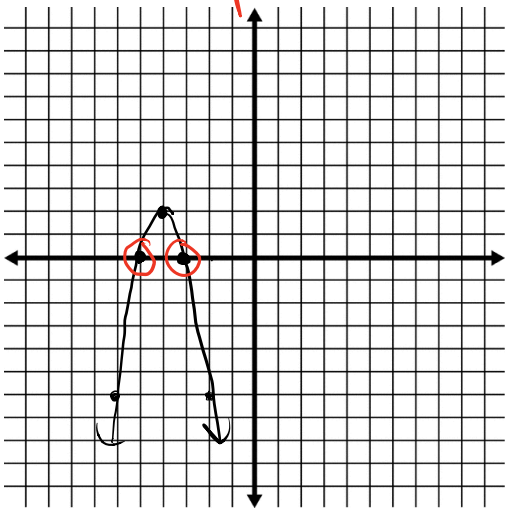


x-int: (2,0) & (6,0)

2. Find the x-intercepts of the functions by graphing.

a) $f(x) = -2x^2 - 16x - 30$

x-intercepts: (-3,0) (-5,0)



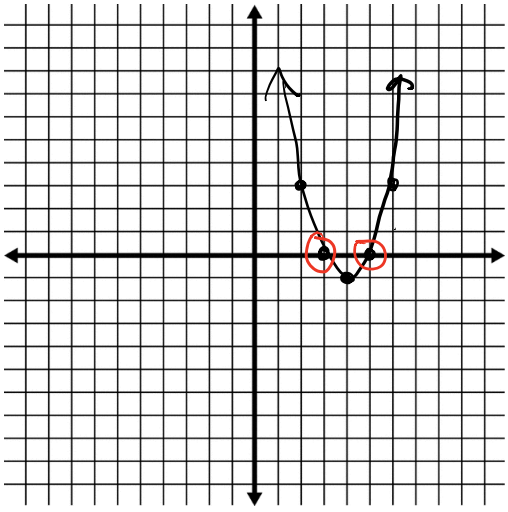
vertex: $x = \frac{-(-16)}{2(-2)} = \frac{16}{-4} = -4$

$f(x) = -2(-4)^2 - 16(-4) - 30$

$f(x) = 2$

vertex: (-4,2)

b) $f(x) = x^2 - 8x + 15$



x-int: (3,0) (5,0)

$x = \frac{-(-8)}{2(1)} = \frac{8}{2} = 4$

$f(x) = 4^2 - 8(4) + 15$

$f(x) = -1$

vertex: (4,-1)

3. Solve the quadratics.

a) $(2x-5)(x+3)=0$

$2x-5=0$ $\quad +5\ +5$ $\qquad x+3=0$ $\quad -3\ -3$

$2x=5$

$x=2.5 \qquad x=-3$

b) $(x+6)(3x+1)=0$

$x+6=0$ $\quad -6\ -6$ $\qquad 3x+1=0$ $\quad -1\ -1$

$x=-6$ $\qquad \frac{3x}{3}=\frac{-1}{3}$

$x=-1/3$

c) $x^2-13x+36=0$

Product of 36	Sum of -13
$-6\cdot-6$	-12
$-12\cdot-3$	-15
$-9\cdot-4$	-13

$(x-9)(x-4)=0$

$x-9=0 \qquad x-4=0$

$x=9 \qquad x=4$

d) $3x^2-17x=-10$

$3\cdot10=30$

Product of 30	Sum of -17
$-6\cdot-5$	-11
$-10\cdot-3$	-13
$-15\cdot-2$	-15

$3x^2-17x+10=0$

$3x^2-15x-2x+10=0$

$3x(x-5)-2(x-5)=0$

$(3x-2)(x-5)=0$

$3x-2=0$ $\quad +2\ +2$ $\qquad x-5=0$

$\frac{3x}{3}=\frac{2}{3}$

$x=2/3 \qquad x=5$

e) $\frac{4x^2}{4}=\frac{28}{4}$

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

$x=\pm\sqrt{7}$

f) $3x^2-8=19$

$+8\ \ +8$

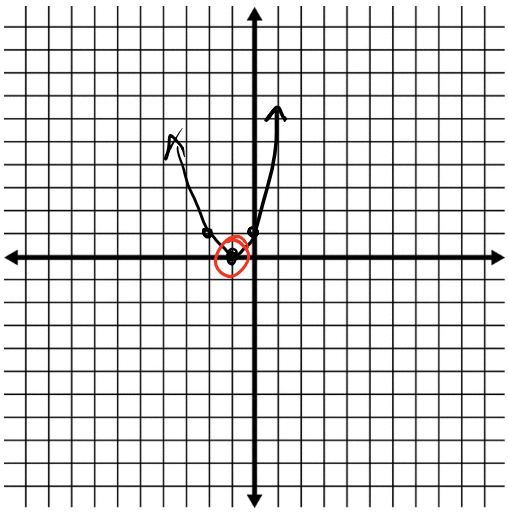
$\frac{3x^2}{3}=\frac{27}{3}$

$\sqrt{x^2}=\sqrt{9}$

$x=\pm3$

Solve by graphing

g) $x^2+2x+1=0$



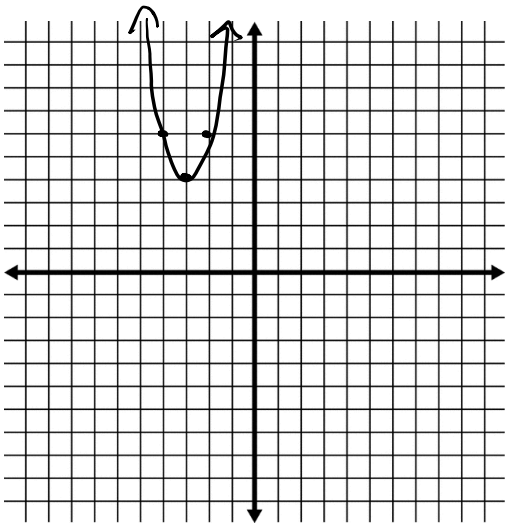
$x=\frac{-2}{2(1)}=-1$

$(-1)^2+2(-1)+1=0$

vertex: $(-1,0)$

x-intercept: $(-1,0)$

h) $2x^2+12x=-22 \rightarrow 2x^2+12x+22=0$



$x=\frac{-12}{2(2)}=\frac{-12}{4}=-3$

$y=2(-3)^2+12(-3)+22=4$

vertex: $(-3,4)$

No x-intercepts/solutions