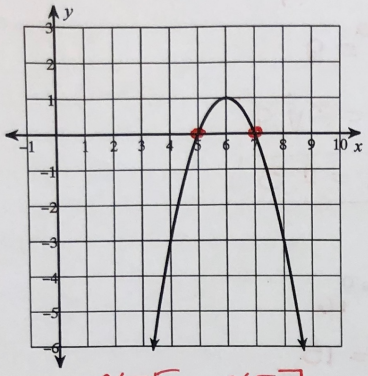
Algebra 2 Name KEY

Finding Zeros - Practice

Date _____ Period ____

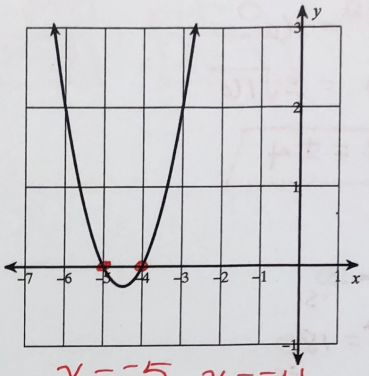
Find the zeros of each quadratic function from looking at the graph.

1)



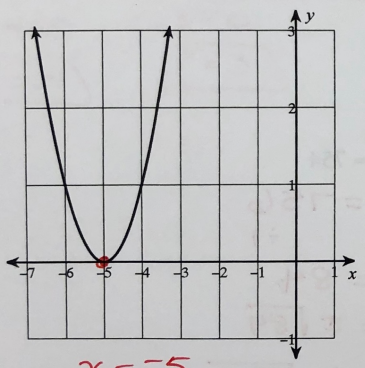
$x=5,\ x=7$

2)



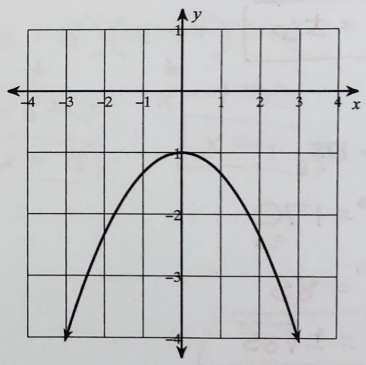
$x=-5,\ x=-4$

3)



$x=-5$

4)



NO ZEROS

5) Write the Quadratic Formula.

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

Find the zeros of each quadratic function by taking square roots.

6) $4p^2 + 10 = 74$

$4p^2 = 64$

$\div 4 \quad \div 4$

$p^2 = 16$

$p = \pm\sqrt{16}$

$\boxed{p = \pm 4}$

7) $9x^2 + 1 = 82$

$-1 \quad -1$

$9x^2 = 81$

$\div 9 \quad \div 9$

$x^2 = 9$

$x = \pm\sqrt{9}$

$\boxed{x = \pm 3}$

8) $5k^2 + 5 = 185$

$-5 \quad -5$

$5k^2 = 180$

$\div 5 \quad \div 5$

$k^2 = 36$

$k = \pm\sqrt{36}$

$\boxed{k = \pm 6}$

9) $5n^2 - 6 = 9$

$+6 \quad +6$

$5n^2 = 15$

$\div 5 \quad \div 5$

$n^2 = 3$

$\boxed{n = \pm\sqrt{3}}$

10) $2r^2 + 8 = 178$

$-8 \quad -8$

$2r^2 = 170$

$\div 2 \quad \div 2$

$r^2 = 85$

$\boxed{r = \pm\sqrt{85}}$

11) $9n^2 - 2 = 754$

$9n^2 = 756$

$\div 9 \quad \div 9$

$n^2 = 84$

$n = \pm\sqrt{84}$

$n = \pm\sqrt{4 \cdot 21}$

$\boxed{n = \pm 2\sqrt{21}}$

12) Write the Quadratic Formula.

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

Find the zeros of each quadratic function by factoring.

13) $x^2 - 4x + 4 = 0$

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

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

$x=2$ $\quad x=2$

14) $x^2 - x - 2 = 0$

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

$x-2=0$ $\quad x+1=0$

$x=2$ $\quad x=-1$

15) $r^2 + r - 12 = 0$

$(r+4)(r-3)=0$

$r+4=0$ $\quad r-3=0$

$r=-4$ $\quad r=3$

16) $x^2 + 4x - 38 = -6$ $\quad +6 \quad +6$

$x^2+4x-32=0$

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

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

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

17) $b^2 - 11b + 30 = 2$ $\quad -2 \quad -2$

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

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

$b-7=0$ $\quad b-4=0$

$b=7$ $\quad b=4$

18) $b^2 - 3b - 46 = -6$ $\quad +6 \quad +6$

$b^2-3b-40=0$

$(b-8)(b+5)=0$

$b-8=0$ $\quad b+5=0$

$b=8$ $\quad b=-5$

19) $m^2 + 30 = -11m$

$+11m \quad +11m$

$m^2 + 11m + 30 = 0$ (+) 11, (*) 30

$(m+5)(m+6) = 0$

$m+5=0 \qquad m+6=0$

$m=-5 \qquad m=-6$

20) $x^2 = -12x - 35$

$+12x \quad +35$

$x^2 + 12x + 35 = 0$ (+) 12, (*) 35

$(x+7)(x+5) = 0$

$x+7=0 \qquad x+5=0$

$x=-7 \qquad x=-5$

21) $2a^2 - 3a + 1 = 0$ (+) -3, (*) $2 \cdot 1 = 2$: $-2, -1$

$2a^2 - 2a - 1a + 1 = 0$

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

$2a(a-1) - 1(a-1) = 0$

$(2a-1)(a-1) = 0$

$2a-1=0 \qquad a-1=0$

$2a=1 \qquad a=1$

$a=1/2$

22) $5m^2 + 17m - 12 = 0$ (+) 17, (*) $5 \cdot -12 = -60$

1	60
2	30
−3	20
4	15
5	12
6	10

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

$(5m^2 - 3m) + (20m - 12) = 0$

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

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

$m+4=0 \qquad 5m-3=0$

$m=-4 \qquad 5m=3$

$m=3/5$

23) $3x^2 + 17x + 20 = 0$ (+) 17, (*) $3 \cdot 20 = 60$

1	60
2	30
3	20
4	15
5	12
6	10

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

$(3x^2 + 5x) + (12x + 20) = 0$

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

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

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

$x=-4 \qquad 3x=-5$

$x=-5/3$

24) $2n^2 - 3n - 14 = 0$ (+) -3, (*) $2 \cdot -14 = -28$

1	28
2	14
4	−7

$2n^2 + 4n - 7n - 14 = 0$

$(2n^2 + 4n) + (-7n - 14) = 0$

$2n(n+2) - 7(n+2) = 0$

$(2n-7)(n+2) = 0$

$2n-7=0 \qquad n+2=0$

$2n=7 \qquad n=-2$

$n=7/2$

25) Write the Quadratic Formula.

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