Sec 2H-Solving Quads Unit Day 5 Notes Name_____

Solve from Factored Form-NO CALCULATOR

1) There are three forms we use to solve a quadratic:
   a. Solving from Vertex Form (Day 3)
   b. Solving from Standard Form (Day 4)
   c. Solving from Factored Form (Today)

We learned to factor quadratics in our last unit, remember?

Factor each completely.

2) $n^2 + 4n - 21$

$(n+7)(n-3)$

$7 + -3 = 4$

$7 \cdot -3 = -21$

1 21

3 7

3) $-p^2 - 11p - 18$

$-1(p+11p+18)$

$-(p+2)(p+9)$

$2 + 9 = +11$

$2 \cdot 9 = +18$

2 9

1 18

3 6

4) $m^2 - 3m$

$m \cdot m$

$m(m-3)$ done!

5) $n^2 - 9$

$(n+3)(n-3)$

$x^2 - 7$

$(x+\sqrt{7})(x-\sqrt{7})$

6) In order fo solve from factored form we need to understand the ZERO PRODUCT PROPERTY.

If $4x = 0$ then what do we know about x?

What if $a \cdot b = 0$, what do we know about a or b? a= 0 or b= 0

So if a quadratic is in factored form, then $(x-r)$ $=0$ *$(x-s)$ $=0$ meaning one or both of the factors equals zero.

To Solve a quadratic equation from Factored Form:

A. make sure that your equation is in factored form, which means, $a(x-r)(x-s) = 0$

B. One _____ equals _____ and it looks like:

$(x-r)(x-s) = 0$.

$(x-m)(x-n)$

C. Then separately, set each of the terms/group equal to 0 and solve.

Solve each equation by factoring.

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

$x+5=0$ | $x-3=0$

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

$x=-5$ | $x=3$

Sol: $x: -5, 3$

8) $(n-1)(4n+1)=0$

$n-1=0$ | $4n+1=0$

$n=+1$ | $4n=-1$

$n=-\frac{1}{4}$

Sol: $n: 1, -\frac{1}{4}$

9) $a^2+4a-32=0$

$(a-4)(a+8)$

$-4+8=4$

$-4 \cdot 8=-32$

32: 1, 2, 4, 8, 16, 32

$a-4=0$ $a+8=0$

$a=4$ $a=-8$

$a: 4, -8$

10) $b^2+7b+10=0$

$(b+2)(b+5)$

$2+5=7$

$2 \cdot 5=10$

10: 1, 2, 5, 10

$b: -2, -5$

11) $m^2-9=0$

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

$-3 \quad 3$

12) $x^2+x-56=0$

$(x+8)(x-7)=0$

$8+-7=1$

$8 \cdot -7=-56$

56: 1, 2, 4, 7, 8, 14, 28, 56

$x: -8, 7$

13) $n^2-53=-4$

$+4 \quad +4$

$n^2-49=0$

$(n+7)(n-7)$

$n: -7, 7$

14) $2a^2+8a-32=-8$

$+8 \quad +8$

$\frac{2a^2+8a-24}{2}=\frac{0}{2}$

$2(a^2+4a-12)=0$

$2(a+6)(a-2)$

$a: -6, 2$

$-2+6=4$

$-2 \cdot 6=-12$

12: 1, 2, 3, 4, 6, 12

15) $5n^2=-14n-8$

$+14n+8 \quad +14n+8$

$5n^2+14n+8=0$

$(5n+4)(n+2)$

$5n+4=0$

$\frac{5n}{5}=\frac{-4}{5}$

$n=-\frac{4}{5}, -2$

5) $2+4=4$

$2 \cdot 4=8$

8: 1, 2, 4, 8

16) $10a^2=-4a$

$\frac{10a^2}{2a}+\frac{4a}{2a}=0$

$2a(5a+2)$

$a: 0, -\frac{2}{5}$

17) $2r^2-5=9r$

$-9r \quad -9r$

$2r^2-9r-5=0$

$(2r+1)(r-5)$

$r: -\frac{1}{2}, 5$

2) $5+1=-4$

$-5 \cdot 1=-5$

5: 1, 5

18) $-6k^2+5k-6=-7k^2$

$+7k^2 \quad +7k^2$

$k^2+5k-6=0$

$(k+6)(k-1)$

$k: -6, 1$