$ax^2 + bx + c$ Factoring Review

I can solve a quadratic equation

Name_________________

Solve each quadratic equation using factoring:

Factor Trinomials $a = 1$

Find 2 numbers that multiply to c and add to b

1) $x^2 - 3x + 2 = 0$

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

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

$x=2 \quad x=1$

2) $z^2 - 5z + 4 = 0$

$(z-4)(z-1)=0$

$z-4=0 \quad z-1=0$

$z=4 \quad z=1$

3) $x^2 - 8x + 16 = 0$

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

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

$x=4 \quad x=4$

$x=4$ twice

4) $r^2 - 12r + 35 = 0$

$(r-7)(r-5)=0$

$r-7=0 \quad r-5=0$

$r=7 \quad r=5$

5) $c^2 + 6c + 5 = 0$

$(c+5)(c+1)=0$

$c+5=0 \quad c+1=0$

$c=-5 \quad c=-1$

6) $m^2 + 10m + 9 = 0$

$(m+9)(m+1)=0$

$m+9=0 \quad m+1=0$

$m=-9 \quad m=-1$

Factor Binomials Difference of Squares

7) $x^2 - 49 = 0$

$x^2 + 0x - 49$

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

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

$x=7 \quad x=-7$

8) $z^2 - 4 = 0$

$(z-2)(z+2)=0$

$z-2=0 \quad z+2=0$

$z=2 \quad z=-2$

9) $m^2 - 64 = 0$

$(m-8)(m+8)=0$

$m-8=0 \quad m+8=0$

$m=8 \quad m=-8$

Factor out GCF # first

10) $3x^2 - 12 = 0$

$3(x^2-4)=0$

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

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

$x=2 \quad x=-2$

Factor out GCF of variable first

11) $d^2 - 2d = 0$

$d(d-2)=0$

$d=0 \quad d-2=0$

$d=2$

12) $s^2 - s = 0$

$s(s-1)=0$

$s=0 \quad s-1=0$

$s=1$

Factor Trinomial $a \neq 1$

split middle term, factor by grouping

13) $2x^2 - 5x + 2 = 0$

$2x^2 - 4x - 1x + 2 = 0$

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

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

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

$x=2 \quad x=1/2$

14) $3x^2 - 10x + 3 = 0$

$3x^2 - 9x - 1x + 3 = 0$

$3x(x-3) - 1(x-3) = 0$

$(x-3)(3x-1)=0$

$x-3=0 \quad 3x-1=0$

$x=3 \quad x=1/3$

15) $3x^2 - 8x + 4 = 0$

$3x^2 - 6x - 2x + 4 = 0$

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

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

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

$x=2 \quad x=2/3$

student

16) $5x^2+11x+2=0$

$5x^2+10x+1x+2=0$

$5x(x+2)+1(x+2)=0$

$(x+2)(5x+1)=0$

$x+2=0 \quad 5x+1=0$

$x=-2 \quad x=-\frac{1}{5}$

student/me

17) $y^2=8y+20$

$y^2-8y-20=0$

$(y-10)(y+2)=0$

$y-10=0 \quad y+2=0$

$y=10 \quad y=-2$

must have x^2 term be pos, thus

stamps move other terms over

18) $x^2=9x-20$

$-9x \quad +20$

$x^2-9x+20=0$

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

$x-5=0 \quad x-4=0$

$x=5 \quad x=4$

stamps

19) $x^2=30+x$

$-30-x$

$x^2-x-30=0$

$(x-6)(x+5)=0$

$x-6=0 \quad x+5=0$

$x=6 \quad x=-5$

stamps

20) $2x^2-x=15$

$-15 \quad -15$

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

$2x^2-6x+5x-15=0$

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

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

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

$x=3 \quad x=\frac{-5}{2}$

21) $x^2+3x-4=50$

$-50 \quad -50$

$x^2+3x-54=0$

$(x+9)(x-6)=0$

$x+9=0 \quad x-6=0$

$x=-9 \quad x=6$