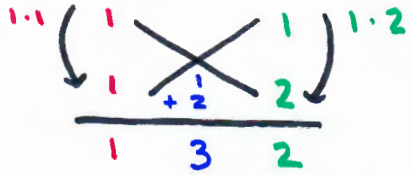
Algebra 2 // Topic 4 // x-factor w/ solving

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



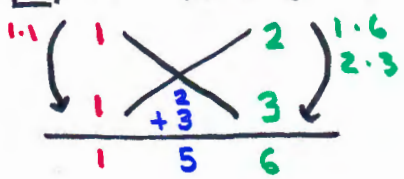
$(x+1)(x+2)$

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

$-1\ -1$ $\quad$ $-2\ -2$

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

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



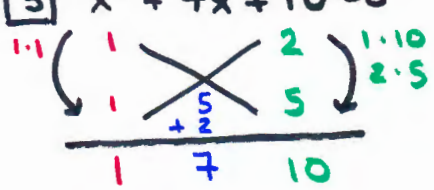
$(x+2)(x+3)$

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

$-2\ -2$ $\quad$ $-3\ -3$

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

3 $x^2+7x+10=0$



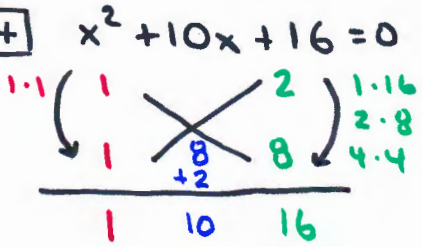
$(x+2)(x+5)$

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

$-2\ -2$ $\quad$ $-5\ -5$

$x=-2$ $\quad$ $x=-5$

4 $x^2+10x+16=0$



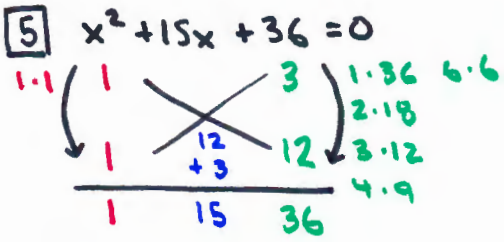
$(x+2)(x+8)$

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

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

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

5 $x^2+15x+36=0$



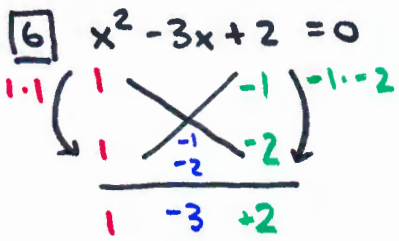
$(x+3)(x+12)$

$x+3=0$ $\quad$ $x+12=0$

$-3\ -3$ $\quad$ $-12\ -12$

$x=-3$ $\quad$ $x=-12$

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



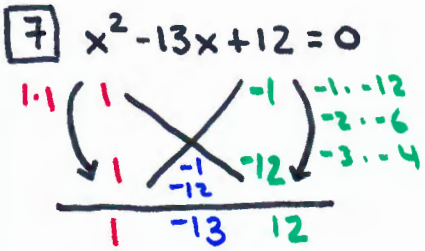
$(x-1)(x-2)$

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

$+1\ +1$ $\quad$ $+2\ +2$

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

7 $x^2-13x+12=0$



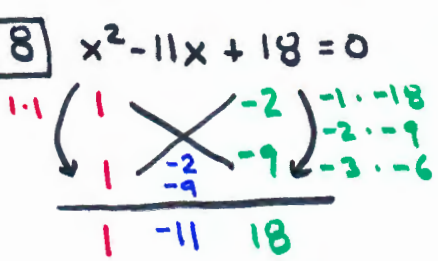
$(x-1)(x-12)$

$x-1=0$ $\quad$ $x-12=0$

$+1\ +1$ $\quad$ $+12\ +12$

$x=1$ $\quad$ $x=12$

8 $x^2-11x+18=0$



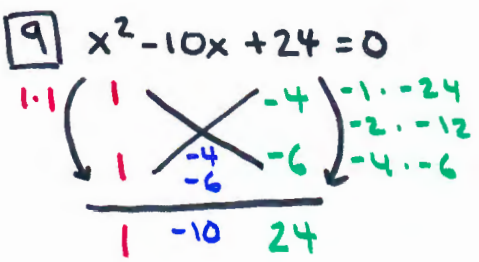
$(x-2)(x-9)$

$x-2=0$ $\quad$ $x-9=0$

$+2\ +2$ $\quad$ $+9\ +9$

$x=2$ $\quad$ $x=9$

9 $x^2-10x+24=0$



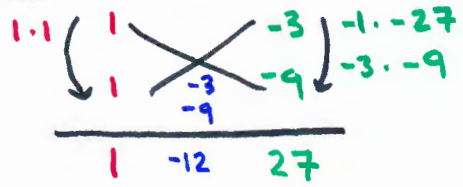
$(x-4)(x-6)$

$x-4=0$ $\quad$ $x-6=0$

$+4\ +4$ $\quad$ $+6\ +6$

$x=4$ $\quad$ $x=6$

10 $x^2 - 12x + 27 = 0$



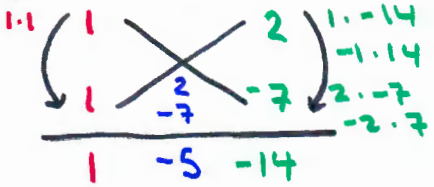
$1 \quad -12 \quad 27$

$(x-3)(x-9)$

$x-3=0 \quad +3 \quad +3$ → $x=3$

$x-9=0 \quad +9 \quad +9$ → $x=9$

11 $x^2 - 5x - 14 = 0$



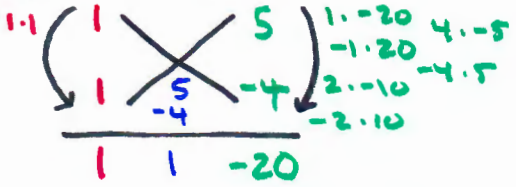
$1 \quad -5 \quad -14$

$(x+2)(x-7)$

$x+2=0 \quad -2 \quad -2$ → $x=-2$

$x-7=0 \quad +7 \quad +7$ → $x=7$

12 $x^2 + x - 20 = 0$



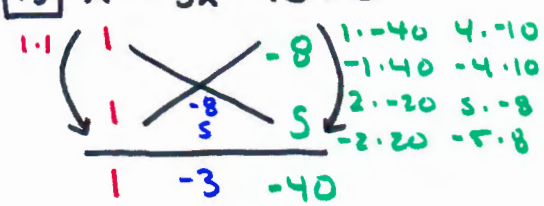
$1 \quad 1 \quad -20$

$(x+5)(x-4)$

$x+5=0 \quad -5 \quad -5$ → $x=-5$

$x-4=0 \quad +4 \quad +4$ → $x=4$

13 $x^2 - 3x - 40 = 0$



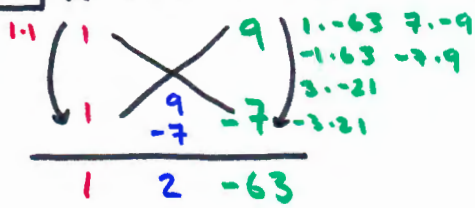
$1 \quad -3 \quad -40$

$(x-8)(x+5)$

$x-8=0 \quad +8 \quad +8$ → $x=8$

$x+5=0 \quad -5 \quad -5$ → $x=-5$

14 $x^2 + 2x - 63 = 0$



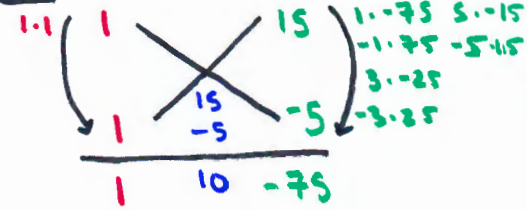
$1 \quad 2 \quad -63$

$(x+9)(x-7)$

$x+9=0 \quad -9 \quad -9$ → $x=-9$

$x-7=0 \quad +7 \quad +7$ → $x=7$

15 $x^2 + 10x - 75 = 0$



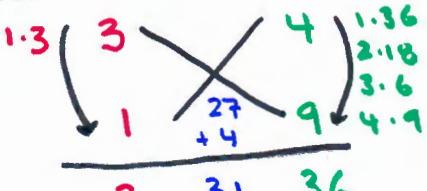
$1 \quad 10 \quad -75$

$(x+15)(x-5)$

$x+15=0 \quad -15 \quad -15$ → $x=-15$

$x-5=0 \quad +5 \quad +5$ → $x=5$

16 $3x^2 + 31x + 36 = 0$



$3 \quad 31 \quad 36$

$(3x+4)(x+9)$

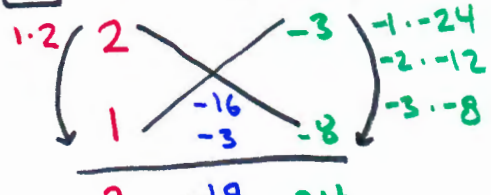
$3x+4=0 \quad -4 \quad -4$

$\frac{3x}{3} = \frac{-4}{3}$

$x = -4/3$

$x+9=0 \quad -9 \quad -9$ → $x=-9$

17 $2x^2 - 19x + 24 = 0$



$2 \quad -19 \quad 24$

$(2x-3)(x-8)$

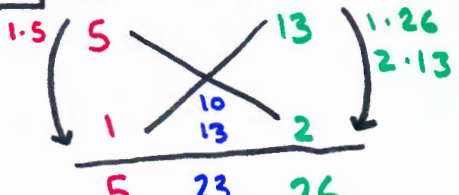
$2x-3=0 \quad +3 \quad +3$

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

$x = 3/2$

$x-8=0 \quad +8 \quad +8$ → $x=8$

18 $5x^2 + 23x + 26 = 0$



$5 \quad 23 \quad 26$

$(5x+13)(x+2)$

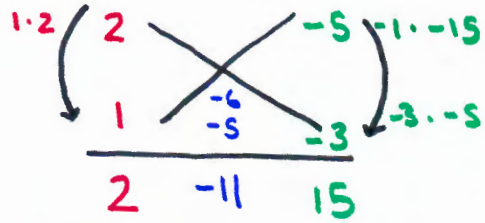
$5x+13=0 \quad -13 \quad -13$

$\frac{5x}{5} = \frac{-13}{5}$

$x = -13/5$

$x+2=0 \quad -2 \quad -2$ → $x=-2$

19 $2x^2 - 11x + 15 = 0$



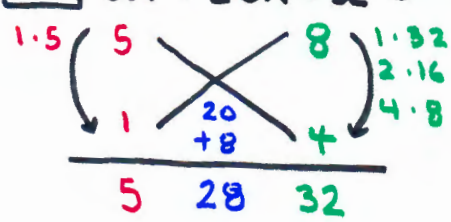
$2 \quad -11 \quad 15$

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

↳ $2x-5=0$; $+5 \; +5$; $\frac{2x}{2} = \frac{5}{2}$; $x = \frac{5}{2}$

↳ $x-3=0$; $+3 \; +3$; $x = 3$

20 $5x^2 + 28x + 32 = 0$



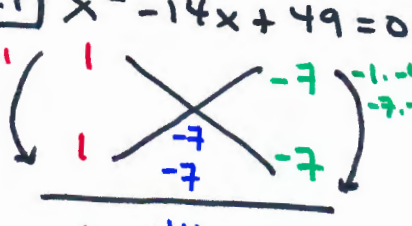
$5 \quad 28 \quad 32$

$(5x+8)(x+4)$

↳ $5x+8=0$; $-8 \; -8$; $\frac{5x}{5} = \frac{-8}{5}$; $x = -\frac{8}{5}$

↳ $x+4=0$; $-4 \; -4$; $x = -4$

21 $x^2 - 14x + 49 = 0$



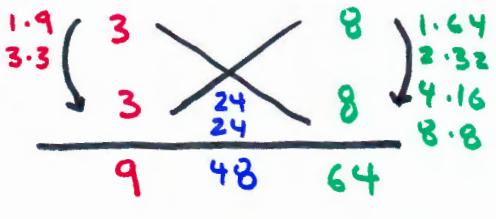
$1 \quad -14 \quad 49$

$(x-7)(x-7)$

↳ $(x-7)^2$

↳ $x-7=0$; $+7 \; +7$; $x = 7$

22 $9x^2 + 48x + 64 = 0$



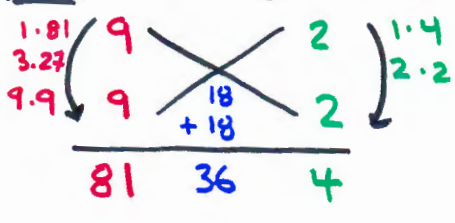
$9 \quad 48 \quad 64$

$(3x+8)(3x+8)$

↳ $(3x+8)^2$

↳ $3x+8=0$; $-8 \; -8$; $\frac{3x}{3} = \frac{-8}{3}$; $x = -\frac{8}{3}$

23 $81x^2 + 36x + 4 = 0$



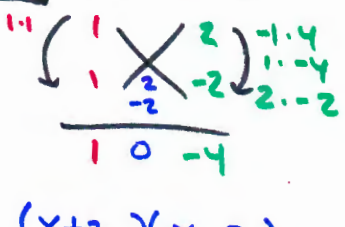
$81 \quad 36 \quad 4$

$(9x+2)(9x+2)$

↳ $(9x+2)^2$

↳ $9x+2=0$; $-2 \; -2$; $\frac{9x}{9} = \frac{-2}{9}$; $x = -\frac{2}{9}$

24 $x^2 - 4 = 0$



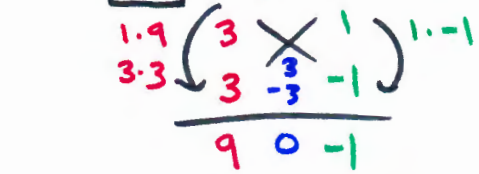
$1 \quad 0 \quad -4$

$(x+2)(x-2)$

↳ $x+2=0$; $-2 \; -2$; $x = -2$

↳ $x-2=0$; $+2 \; +2$; $x = 2$

25 $9x^2 - 1$



$9 \quad 0 \quad -1$

$(3x+1)(3x-1)$

↳ $3x+1=0$; $-1 \; -1$; $\frac{3x}{3} = \frac{-1}{3}$; $x = -\frac{1}{3}$

↳ $3x-1=0$; $+1 \; +1$; $\frac{3x}{3} = \frac{1}{3}$; $x = \frac{1}{3}$