FACTORING TRINOMIALS USING SLIDE AND DIVIDE

Factoring ax^2+bx+c

SLIDE AND DIVIDE METHOD EXAMPLE

EASY WAY TO GET FACTORS

DOUBLE	HALF
1	30
2	15

can't half 15 then we try 3

3	10
6	5

ALWAYS TRY 2, 3, 5, 7 ON THE LEFT HAND SIDE IF YOU CAN'T HALF THE RIGHT

Ex: $2x^2-7x-15$ *multiply first number to the last*

$x^2-7x-30$ *factor normal*

$(x-10)(x+3)$

$\dfrac{}{2}$ $\dfrac{}{2}$ reduce, if not bottom # goes in front

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

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1) $4x^2 + 8x + 3$ *number in front of x , check for a GCF then use **slide and divide***

$x^2 + 8x + 12$ factors of 12, add to get 8, signs are the same +

$(x+\underline{2})(x+\underline{6})$ the divide by 4

$\dfrac{}{4}$ $\dfrac{}{4}$ reduce each fraction $\dfrac{2}{4}=\dfrac{1}{2}$ and $\dfrac{6}{4}=\dfrac{3}{2}$ bottom # goes in front

$(2x+1)(2x+3)$

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2) $2m^2 - 13m - 24$

$m^2 - 13m - 48$ factors of 48, subtract to get 13, signs are different

$(m-16)(m+3)$ *higher # is -*   the divide by 2

$\dfrac{}{2}$ $\dfrac{}{2}$ reduce each fraction $\dfrac{16}{2}=8$ and $\dfrac{3}{2}$ bottom # goes in front

$(m-8)(2m+3)$

3) $3v^2 - 19v - 14$

$v^2 - 19v - 42 = 0$ factors of 42, subtract to get 19, signs are different

$(v-21)(v+2)=0$ *higher # is -*   the divide by 3

$\quad\quad 3 \quad 3$ reduce each fraction $\frac{21}{3} = 7 \; and \; \frac{2}{3}$ bottom # goes in front

$(v-7)(3v+2)$

4) $4m^2 - 25m - 21$

$m^2 - 25m - 84$ factors of 84, subtract to get 25, signs are different

$(m+\underline{3})(m-28)$ *higher # is -*   the divide by 4

$\quad\quad 4 \quad\quad 4$ reduce each fraction $\frac{3}{4} \; and \; \frac{28}{4} = \mathbf{7}$ bottom # goes in front

$(4m-3)(m-7)$

5) $2x^2 + 9x - 35 \;\; 0$

$x^2 + 9x - 70$ factors of 70, add to get 9, signs are the different -

$(x-\underline{5})(x+14)$ the divide by 2

$\quad\quad 2 \quad 2$

$(2x-5)(x+7)$

SHORT CUT TO LIST ALL FACTORS: *double left side, half right side

Factors of 42

EASY WAY TO GET FACTORS	
DOUBLE	HALF
1	42
2	21
can't half 21 then we try 3	
3	14
6	7

ALWAYS TRY 2, 3, 5, 7 ON THE LEFT-HAND SIDE IF YOU CAN'T HALF THE RIGHT

Factors 72

EASY WAY TO GET FACTORS	
DOUBLE	HALF
1	72
2	36
4	18
8	9
can't half 9 then we try 3	
3	24
6	12

ALWAYS TRY 2, 3, 5, 7 ON THE LEFT-HAND SIDE IF YOU CAN'T

Factors of 30

6) $5x^2 + 24x - 5$

$x^2 + 24x + 25$ factors of 25, subtract to get 24, signs are the same +

$(x+25)(x-1)$ the divide by 5

    5   5

$(x+5)(5x-1)$

7) $3x^2 + 11x - 4$

$x^2 + 11x - 12$ factors of 25, subtract to get 24, signs are the same +

$(x+12)(x-1)$ the divide by 3

    3   3

$(x+4)(3x-1)$

8) $8y^2 + 18y + 9$ $y^2 + 18y + 72$ factors of 72, add to get 18, signs are the

same +

  (y+12)(y+6)   the divide by 8

    8   8 reduce $\frac{12}{8} = \frac{3}{2}$ and $\frac{6}{8} = \frac{3}{4}$ bottom # goes in front

  (2x+3)(4x+3)

9) $4x^2 - 4x - 3$

  $x^2 - 4x - 12$ factors of 12, subtract to get 4, signs are the same +

  (x+2)(x-6)   the divide by 4

    4   4

  (2x+)(3x-2)

10) $10y^2 + 37y + 7$

  $y^2 + 37y + 70$ factors of 70, add to get 18, signs are the same +

  (y+12)(y+6)   the divide by 8

    8   8 reduce $\frac{12}{8} = \frac{3}{2}$ and $\frac{6}{8} = \frac{3}{4}$ bottom # goes in front

  (2x+3)(4x+3)