Topic: factoring quadratic expressions:

1. standard form $|a| = 1$
2. where GCF (greatest common factor) is involved

factoring: to re-write an expression as the product of simpler expressions.
(often: distributive property backwards)

Example: factor $2x+8$

$2(x+4)$

GCF

Example: factor x^2-1

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

FOIL: (distributing) $x^2+1x-1x-1$ (0) x^2-1 ✓

Example: factor x^2+1

can't do it (with real numbers)

① Factor expressions in standard form where $|a| = 1$ $a = \pm 1$

① Factor $x^2 + 9x + 20$

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

Question: can you find 2 numbers, m and n, such that:

$m + n = 9$

$m \cdot n = 20$

$m = 4 \quad n = 5$

if can't get it fast?

m	n	m+n
1	20	21
2	10	12
4	5	9

↑ factors of 20

② factor $x^2 + 14x - 72$

$(x-4)(x+18)$

$m + n = 14$

$m \cdot n = -72$

factors of −72

m	n	
−1	72	71
−2	36	34
−3	24	21
−4	18	14

③ factor $-x^2+13x-12$

$-1(x^2-13x+12)$

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

-1 must be factored out first

$m+n=-13$

$m \cdot n = 12$

$m=-1$

$n=-12$

factoring with GCF (greatest common factor)

① factor $6n^2+9n$

$3n(2n+3)$

"factoring out 3n"

② factor $4x^2+20x-56$

GCF = 4

"factor out 4"

$4(x^2+5x-14)$

$4(x-2)(x+7)$

-14

m	n
-1	14
-2	7

13 (5)

$m+n=5$

$m \cdot n = -14$

$m=-2 \quad n=7$

"GCF is your friend"
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"always look for GCF
FIRST!"
Jositos©