Gucc. Jan 29

Factor out a Constant before factoring.

$$\frac{5v^2}{5} + \frac{30v}{5} + \frac{70}{5}$$

$$5(1v^2 + \overset{m}{6}v + \overset{z}{14})$$

$$5(v^2+6v+14)$$

$$5(v\quad)(v\quad)$$

14	6
1·14	
2·7	

because cannot be factored any further!

11)

$$\frac{3u^2}{3} + \frac{12u}{3} - \frac{63}{3}$$

$$3(1u^2 + \overset{m}{4}u \overset{L}{-21})$$

$$3(u-3)(u+7)$$

L	m
-21	4
-3·7	

$$\frac{6x^2}{6} - \frac{48x}{6} + \frac{72}{6}$$

$$6(x^2 - 8x + 12)$$

m L

$$6(x-6)(x-2)$$

L

12 | -8

$-6 \cdot -2$

1 · 12
2 · 6
3 · 4

What is factoring?

Is a series of techniques to Solve equation & Quadratic.

Ex: $3x + 12$

Factoring comes from factors.

Ex $4 \times 3 = 12$ (Product)

Factor factor

Expression $3x + 12$

$\frac{3x}{3} + \frac{12}{3}$

To factor this Expression you need GCF

$3(x+4)$ factored!

Techniques:

1. Regular factorization
2. Factoring by Grouping (AC method)
3. Factoring by Completing the Square
4. Factoring Trial & ERROR
5. Quadratic formula

Example:

a) $x^2 + 4x - 21$ (2 = m Bus, L)

factor Completely!

L	m
-21	4
-3·7	-3+7 = 4

$(x-3)(x+7)$

What about if it says Solve!

$x^2 - 16xy + 39y^2$ (2 = m, a, c)

39	-16
-3·-13	

$x^2 - 3xy - 13xy + 39y^2$

$\frac{x}{x} \quad \frac{-3xy}{x} \quad \frac{-13xy}{-13y} \quad \frac{39y^2}{-13y}$

$x(x-3y) \quad -13y(x-3y)$

gcf

$(x-13y)(x-3y)$

outside Twins

$x^2 - 3xy - 4y^2$

a = 1, m = −3, c = −4

$-4 \mid -3$

$1 \cdot -4 \quad 1 + (-4)$

$x^2 + 1xy - 4xy - 4y^2$

$\frac{x^2}{x} + \frac{1xy}{x} \quad \frac{-4xy}{-4y} \quad \frac{-4y^2}{-4y}$

$x(x+y) \quad -4y(x+y)$

$(x-4y)(x+y)$

outside twin

Factor!!

a) $1x^2 + 11xy + 30y^2$

(1 = a, 11 = m, 30 = c)

ac	m
30	11
5 · 6	

Rewrite

$x^2 + 5xy + 6xy + 30y^2$

$\frac{x^2}{x} + \frac{5xy}{xy} + \frac{6xy}{6y} + \frac{30y^2}{6y}$

$x(x+5y) \quad 6y(x+5y)$

$(x+6y)(x+5y)$ ✓

$z^2+9z+20$

$u(k) = \sqrt{-5x+20}$

Find Domain

Write in Int. Notation!

$(-\infty, 4]$ ✓

$z^2+9z+20$

$(z+4)(z+5)$ ✓

Factor

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

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

-4 | -3

1 | -4

Done!

Factor

b) $7x^2 + 35x + 42$

$7(x^2 + 5x + 6)$

$7(x+3)(x+2)$ ✓

Done!

c) $x^2 + 11xy + 30y^2$

$7(w-3)-5w(w-3)$

$(7-5w)(w-3)$ ✓

Outside Twin

Coefficient = $1, -5$

Constant = $7, -3$

Binomial = $2(w-3)$

Monomial = 1 $-5w$