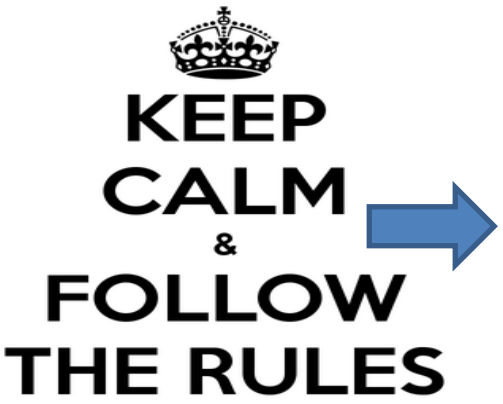

To Factor a quadratic expression $x^2 + bx + c$

1. Find 2 numbers that multiply to "c" and add to "b"
2. Express as a product (x + r)(x + s)

Ex.2 Factor

1, 15
3, 5

a) $x^2 + 8x + 15$

Multiply: 15
Add: 8
Numbers: 3, 5

$= (x+3)(x+5)$

1, 12
2, 6
3, 4

b) $x^2 - 8x + 12$

M 12
A −8
N −2, −6

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

1, 18
2, 9
3, 6

c) $x^2 + 3x - 18$

M −18
A 3
N −3, 6

$= (x-3)(x+6)$

1, 4
2, 2

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

M −4
A −3
N 1, −4

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

e) $x^2 - 4x + 6$

M 6
A −4
N

1, 6
2, 3

CANNOT FACTOR

a) $12x^2 + 11x - 5$

$=12x^2-4x+15x-5$

$=4x(3x-1)+5(3x-1)$

$=(3x-1)(4x+5)$

M -60
A 11
N -4,15

60
1,60
2,30
3,20
4,15
5,12
6,10

b) $8x^2 - 2x - 3$

$=8x^2+4x-6x-3$

$=4x(2x+1)-3(2x+1)$

$=(2x+1)(4x-3)$

M -24
A -2
N 4,-6

24
1,24
2,12
3,8
4,6

c) $10x^2 - 17x + 3$

M 30
A -17
N -2,-15

$=10x^2-15x-2x+3$

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

$=(2x-3)(5x-1)$

30
1,30
2,15
3,10
5,6

d) $12 + 18d + 8d^2$

$=2(6+9d+4d^2)$

Not possible

M 24
A 9
N

24
1,24
2,12
3,8
4,6