

Sec. 4.4 Factoring Quadratic Expressions

Problem 1: * GCF greatest common factor

What is the expression in factored form?

a. $\frac{4x^2}{4x} - \frac{28x}{4x} = 4x(x-7)$ $\frac{21x^2}{7x} + \frac{7x}{7x}$
 $7x(3x+1)$

b. $\frac{9x^2}{9} + \frac{9x}{9} - \frac{18}{9} = 9(x^2+x-2)$

c. $\frac{10x^2}{2x} - \frac{6x}{2x} + \frac{35x}{7} - \frac{21}{7}$ $10x^2 + 29x - 21$

$\frac{2x(5x-3)}{(5x-3)} + \frac{7(5x-3)}{(5x-3)}$ $2x + 7x$
 $(2+7)x$

$(5x-3)(2x+7)$

$2x(5x-3) + 7(5x-3)$
 $(2x+7)(5x-3)$

Factor. $ax^2 + bx + c$

a. $2m^2 - 11m + 15$

$$a \cdot c = 2 \cdot 15 = 30$$

1	30
2	15
3	10
-5	-6

$$\underbrace{2m^2 - 5m}_{m} - \underbrace{6m + 15}_{-3}$$

$$m(2m - 5) - 3(2m - 5)$$

$$(2m - 5)(m - 3)$$

b. $5y^2 + 12y - 32$

$$a \cdot c = 5(-32)$$

1	-160
2	80
4	40
5	-32
-8	20
10	-16

$$\underbrace{5y^2 + 20y}_{5y} - \underbrace{8y - 32}_{-8}$$

$$5y(y + 4) - 8(y + 4)$$

$$(y + 4)(5y - 8)$$

c. $2x^2 - 19x + 24$

$$2 \cdot 24 = 48$$

1	48
2	24
-3	-16
4	12

$$\underbrace{2x^2 - 16x}_{2x} - \underbrace{3x + 24}_{-3}$$

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

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

$$d. \quad x^2 - 4$$

$$x^2 + 0x - 4$$

$$\underline{x^2 - 2x} + \underline{2x - 4}$$

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

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

$$a \cdot c = 1 \cdot -4 = -4$$

1 · 4
-2 · 2

