10.4 – Factoring III

Factor the following quadratic polynomials. ax^2+bx+c

1. $6x^2 - 5x + 1$

6
$\wedge$
$-2-3=-5$ add to 5.

❋ Factors of 6 that add to 5.

$\underline{6x^2-2x}\,\underline{-3x+1}$

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

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

2. $2x^2 + 9x - 18$

❋ Factors of 36 that subtract to 9.

36
$\wedge$
$+12-3 = 9$

$\underline{2x^2+12x}\,\underline{-3x-18}$

$2x(x+6)-3(x+6)$

$(2x-3)(x+6)$

3. $3x^2 + 5x - 12$

❋Factors of 36 that subtract to 5.

36
$\wedge$
$+9-4=5$

$\underline{3x^2+9x}\,\underline{-4x-12}$

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

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

4. $6x^2 - x - 2$

❋ Factors of 12 that subtract to 1.

12
$\wedge$
$-4+3=1$

$\underline{6x^2-4x}\,\underline{+3x-2}$

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

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

1. Multiply a & c, ignoring signs.
2. Write sentence.
   ❋ Factors of $(a·c)$ that (sign of c) to (b).
3. Replace middle term with factors.
4. Group and factor.