Factoring Trinomials $x^2 + bx + c$.

Expand ① $(x+5)(x+1) = x^2 + x + 5x + 5$

$$= x^2 + 6x + 5$$

sum $5+1$ product 5×1

② $(x-2)(x-3) = x^2 - 3x - 2x + 6$

$$= x^2 - 5x + 6$$

sum $-3+2$ product -3×-2

③ $(x+4)(x-5) = x^2 - 5x + 4x - 20$

$$= x^2 - x - 20$$

sum $4+-5$ product 4×-5

$-3 + 7 = +$

$-7 + 5 = -$

Factor: $x^2 + 7x + 12$

both +   product

sum   → signs are the same

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

2 #'s that × to 12
        + to 7

both −   signs same

$x^2 - 9x + 18$

sum   prod

1	18
2	9
③	⑥

$(x-3)(x-6)$

$-5 + 9 = +4$

sign of larger #   different signs

$x^2 - 2x - 15$

difference

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

Factor: ① $x^2 - 10x + 21 =$
$(x-3)(x-7)$

② $x^2 + 10x + 24 =$
$(x+6)(x+4)$

③ $x^2 + x - 42 =$
$(x+7)(x-6)$

$\underline{x^2} + \underline{2xy} \bigcirc \underline{24} y^2$
$(x+6y)(x-4y)$

$\boxed{GCF}$

✱ First look
for a GCF

$2x^2 + 18x + 40 \longleftarrow$
$\underline{2}(\underline{x^2 + 9x + 20})$

$2(x+4)(x+5)$

✱ Don't lose GCF in answer

Try: Factor

signs same

① $x^2 - 14xy + 48y^2$
$(x-6y)(x-8y)$

② $\dfrac{3x^3}{3x} - \dfrac{3x^2}{3x} - \dfrac{90x}{3x}$

$3x(x^2 - x - 30)$

$$3x(x+5)(x-6)$$

Text pg 234-37 #4, 5, 9, 10, 13

4d) $p^2 + 9p + 13$.

1	12
2	6
3	4

10c) $x^2 - x + c$
   -1

$$2 \quad -3 \qquad c = -6$$
$$3 \quad -4 \qquad\qquad -12$$
$$4 \quad -5 \qquad\qquad -20$$
$$5 \quad -6 \qquad\qquad -30 \ldots$$