

Sec. 4.4 Factoring Quadratic Expressions

What is the factored form?

1. $x^2 + 7x + 6$
 $(x+1)(x+6)$

2. $4x^2 - 28x$ $\textcircled{1} \text{ GCF}$
 $4x(x-7)$

3. $2x^2 + 5x - 12$
 $(2x-3)(x+4)$

4. $4x^2 + 7x + 3$
 $(x+1)(4x+3)$

5. $2x^2 - 7x + 6$
 $(2x-3)(x-2)$ $2x^2 - 4x - 3x + 6$
 $-7x$

6. $x^2 - 11x + 30$
 $(x-5)(x-6)$

7. $-x^2 + 14x + 32$
 $-1(x^2 - 14x - 32)$
 $-1(x+2)(x-16)$

8. $4x^2 - 4x - 3$ $a \cdot c = 4(-3)$
 $(2x+1)(2x-3)$ -12
 $1-12$
 $2-6$
 $3-4$
 $4x^2 + 2x - 6x - 3$
 $(2x-3)(2x+1) \leftarrow 2x(2x+1) - 3(2x+1)$
 $(2x+1)(2x-3)$

9. $5x^2 + 28x + 32$ $5 \cdot 32 = 160$
 $5x^2 + 8x + 20x + 32$ $1-160$
 $x(5x+8) + 4(5x+8)$ $2-80$
 $(5x+8)(x+4)$ $4-40$
 $5-32$
 $8-20$
 $10-16$

$(5x+8)(x+4)$
 $8x$
 $20x$

$$10. \quad x^2 - 12x + 36 \quad \begin{array}{l} 1 \cdot 36 \\ 2 \cdot 18 \\ 3 \cdot 12 \\ 4 \cdot 9 \\ \boxed{6 \cdot 6} \end{array}$$

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

$$(x-6)^2$$

① GCF

② PS

$$a^2 + \boxed{2ab} + b^2$$

$$(a+b)^2$$

$$11. \quad 81x^2 - 36x + 4$$

$$(9x-2)^2$$

$$-18x$$

$$81x^2 \quad \underline{-18x - 18x + 4}$$

$$12. \quad \begin{array}{l} 1 \cdot 4 \\ 2 \cdot 2 \end{array} 4x^2 + 20x + 25 \quad \begin{array}{l} 1 \cdot 25 \\ 5 \cdot 5 \end{array}$$

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

$$10x$$

100

$$13. \quad x^2 - 49 \quad \begin{array}{l} 1 \cdot 49 \\ 7 \cdot 7 \end{array} \rightarrow x^2 + 0x - 49$$

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

$$14. \quad 36x^2 - 121 \quad \begin{array}{l} a^2 - b^2 = \\ (a+b)(a-b) \end{array}$$

$$(6x+11)(6x-11)$$

$$15. \quad 50x^2 - 10x$$

GCF

$$10x(5x-1)$$