

More Practice Factoring Polynomials

Factor each polynomial. Remember to factor out the GCF, if possible. Then, "slip" and "slide".

1) $5x^2 + 8x - 4$

no GCF,

$$\underline{5x^2 + 8x - 4} \quad \text{"slip"}$$

$$x^2 + 8x - 20$$

Factor Pairs of -20

$$1 \cdot (-20) \text{ or } -1 \cdot 20$$

$$2 \cdot (-10) \text{ or } -2 \cdot (10)$$

$$4 \cdot (-5) \text{ or } -4 \cdot (5)$$

Sum = 8 (b)

$$-2 + 10 = 8 \checkmark$$

$$x^2 + 8x - 20 = (x - 2)(x + 10)$$

$$\left(x - \frac{2}{5}\right)\left(x + \frac{10}{5}\right) \quad \text{"slide"}$$

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

2) $3b^2 + 14b + 8$

no GCF,

$$\underline{3b^2 + 14b + 8} \quad \text{"slip"}$$

$$b^2 + 14b + 24$$

Factor Pairs of 24

$$1 \cdot 24$$

$$2 \cdot 12$$

$$3 \cdot 8$$

$$4 \cdot 6$$

Sum = 14 (b)

$$2 + 12 = 14 \checkmark$$

$$b^2 + 14b + 24 = (b + 2)(b + 12)$$

$$\left(b + \frac{2}{3}\right)\left(b + \frac{12}{3}\right)$$

$$(3b + 2)(b + 4)$$

$$3) 2x^2 - 5x + 3$$

no GCF.

$$\underline{2x^2 - 5x + 3}$$

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

Factors of 6

$$-1 \cdot (-6)$$

$$-2 \cdot (-3)$$

$$\underline{\text{Sum} = -5 (b)}$$

$$-2 + (-3) = -5 \checkmark$$

$$x^2 - 5x + 6 = (x-2)(x-3)$$

$$\left(x - \frac{2}{2}\right)\left(x - \frac{3}{2}\right)$$

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

$$4) 5p^2 - 6p - 8$$

no GCF

$$\underline{5p^2 - 6p - 8}$$

$$p^2 - 6p - 40$$

Factors of -40

$$1 \cdot (-40) \text{ or } -1 \cdot 40$$

$$2 \cdot (-20) \text{ or } -2 \cdot 20$$

$$4 \cdot (-10) \text{ or } -4 \cdot 10$$

$$5 \cdot (-8) \text{ or } -5 \cdot 8$$

$$\underline{\text{Sum} = -6 (b)}$$

$$4 + (-10) = -6 \checkmark$$

$$p^2 - 6p - 40 = (p+4)(p-10)$$

$$\left(p + \frac{4}{5}\right)\left(p - \frac{10}{5}\right)$$

$$(5p+4)(p-2)$$

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

no GCF.

$$\underline{2x^2 + 11x + 12}$$

$$x^2 + 11x + 24$$

Factors of 24

$$1 \cdot 24$$

$$2 \cdot 12$$

$$3 \cdot 8$$

$$4 \cdot 6$$

$$\underline{\text{Sum} = 11 (b)}$$

$$3 + 8 = 11 \checkmark$$

$$x^2 + 11x + 24 = (x+3)(x+8)$$

$$\left(x + \frac{3}{2}\right)\left(x + \frac{8}{2}\right)$$

$$(2x+3)(x+4)$$

$$6) 2a^2 - 7a - 4$$

no GCF.

$$\underline{2a^2 - 7a - 4}$$

$$a^2 - 7a - 8$$

Factors of -8

$$1 \cdot (-8) \text{ or } -1 \cdot 8$$

$$2 \cdot (-4) \text{ or } -2 \cdot 4$$

$$\underline{\text{Sum} = -7 (b)}$$

$$1 + (-8) = -7 \checkmark$$

$$a^2 - 7a - 8 = (a+1)(a-8)$$

$$\left(a + \frac{1}{2}\right)\left(a - \frac{8}{2}\right)$$

$$(2a+1)(a-4)$$

$$7) \frac{6x^2 + 15x - 9}{3} = 2x^2 + 5x - 3$$

$$\text{GCF} = 3$$

$$\underline{\underline{3}}(2x^2 + 5x - 3)$$

$$\underline{\underline{2x^2 + 5x - 3}}$$

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

Factors of -6

$$1 \cdot (-6) \text{ or } -1 \cdot 6$$

$$2 \cdot (-3) \text{ or } -2 \cdot 3$$

$$\underline{\underline{\text{Sum} = 5 (b)}}$$

$$-1 + 6 = 5 \checkmark$$

$$x^2 + 5x - 6 = (x-1)(x+6)$$

$$(x - \frac{1}{2})(x + \frac{6}{2})$$

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

Don't forget the GCF!

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

$$8) \frac{10k^2 + 46k + 24}{2} = 5k^2 + 23k + 12$$

$$\text{GCF} = 2$$

$$\underline{\underline{2}}(5k^2 + 23k + 12)$$

$$k^2 + 23k + 60$$

Factors of 60

$$1 \cdot 60$$

$$2 \cdot 30$$

$$3 \cdot 20$$

$$4 \cdot 15$$

$$5 \cdot 12$$

$$6 \cdot 10$$

$$\underline{\underline{\text{Sum} = 23 (b)}}$$

$$3 + 20 = 23 \checkmark$$

$$k^2 + 23k + 60 = (k+3)(k+20)$$

$$(k + \frac{3}{5})(k + \frac{20}{5})$$

$$(5k+3)(k+4)$$

Don't forget the GCF!

$$2(5k+3)(k+4)$$