

Algebra 2

Name _____ ID: 1

Factoring trinomials 'a' does not = 1

Factor each completely.

1) $35k^3 + 5k^2 - 40k$

$$5k (7k^2 + 1k - 8) \quad \begin{array}{c} -56 \\ \wedge \end{array}$$

$$5k (7k^2 - 7k + 8k - 8) \quad -7 + 8 = 1$$

$$5k (7k(k-1) + 8(k-1))$$

$$5k(k-1)(7k+8)$$

2) $5a^2 + 11a + 2$

$$\begin{array}{c} 10 \\ \wedge \\ 10 + 1 = 11 \end{array}$$

$$(5a^2 + 10a) + (a + 2)$$

$$5a(a+2) + 1(a+2)$$

$$(a+2)(5a+1)$$

3) $2a^2 + 9a - 81$

$$(2a^2 + 18a) - (9a - 81)$$

$$2a(a+9) - 9(a-9)$$

$$(a+9)(2a-9)$$

4) $5p^2 + 17p + 6$

$$\begin{array}{c} 30 \\ \wedge \\ 15 + 2 = 17 \end{array}$$

$$(5p^2 + 15p) + (2p + 6)$$

$$5p(p+3) + 2(p+3)$$

$$(p+3)(5p+2)$$

5) $3x^2 + 2x - 40$

$$\begin{array}{l} -120 \\ \wedge \\ (3x^2 + 12x)(-10x - 40) \quad 12x + (-10) = 2 \\ 3x(x+4) - 10(x+4) \\ (x+4)(3x-10) \end{array}$$

6) $5x^2 + 33x - 14$

7) $2x^2 + 7x - 49$

8) $3x^2 + 4x + 1$

9) $2n^2 - 13n + 20$

$$\begin{array}{l} 10) 2n^3 - 3n^2 - 5n \\ n(2n^2 - 3n - 5) \quad -10 \\ \wedge \\ n(2n^2 - 5n)(2n - 5) \quad -5 + 2 = -3 \\ n(n(2n-5) + 1)(2n-5) \\ n(2n-5)(n+1) \end{array}$$

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$$5k(7k + 8)(k - 1)$$

2) $5a^2 + 11a + 2$

$$(5a + 1)(a + 2)$$

3) $2a^2 + 9a - 81$

$$(2a - 9)(a + 9)$$

4) $5p^2 + 17p + 6$

$$(5p + 2)(p + 3)$$

$$5) 3x^2 + 2x - 40$$
$$(3x - 10)(x + 4)$$

$$6) 5x^2 + 33x - 14$$
$$(5x - 2)(x + 7)$$

$$7) 2x^2 + 7x - 49$$
$$(2x - 7)(x + 7)$$

$$8) 3x^2 + 4x + 1$$
$$(3x + 1)(x + 1)$$

$$9) 2n^2 - 13n + 20$$
$$(2n - 5)(n - 4)$$

$$10) 2n^3 - 3n^2 - 5n$$
$$n(2n - 5)(n + 1)$$