

Bellwork Alg 2 Tuesday, November 13, 2018

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

Factor each.

1. $64x^6 + 27$

2. $1000x^3 - 2197y^9$

3. Find this quotient: $\frac{15x^5 - 10x^4 + 9x^3 + 11x - 30}{3x - 2}$

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Factor each.

1. $64x^6 + 27$

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

$$a = 4x^2 \quad b = 3$$

$$(4x^2 + 3)(16x^4 - 12x^2 + 9)$$

2. $1000x^3 - 2197y^9$

$$(10x)^3 - (13y^3)^3$$

$$a = 10x \quad b = 13y^3$$

$$(10x - 13y^3)(100x^2 + 130xy^3 + 169y^6)$$

3. Find this quotient: $\frac{15x^5 - 10x^4 + 9x^3 + 11x - 30}{3x - 2}$ missing x^2 term

$$\begin{array}{r}
 5x^4 + 3x^2 + 2x + 5 \\
 3x-2 \overline{) 15x^5 - 10x^4 + 9x^3 + 0x^2 + 11x - 30} \\
 \underline{- 15x^5 - 10x^4} \\
 0 0 9x^3 + 0x^2 \\
 \underline{- 9x^3 - 6x^2} \\
 6x^2 + 11x \\
 \underline{- 6x^2 - 4x} \\
 15x - 30 \\
 \underline{- 15x - 10} \\
 -20
 \end{array}$$

$$\begin{array}{l}
 5x^4 + 3x^2 + 2x + 5 \\
 R = -20
 \end{array}$$