

Name _____
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Date _____
Algebra II

Proving Expressions are Equal

Prove the following expressions are equal

1. $4k^2 - 49 = (2k + 7)(2k - 7)$

2. $a^3 - 8b^3 = (a - 2b)(a^2 + 2ab + 4b^2)$

3. $(x + 2)^2 + 2(x + 2) - 8 = (x + 6)x$

4. $m^5 + m^3 - 6m = m(m^2 + 3)(m^2 - 2)$

$$5. t^3 + 5t^2 + 6t + t^2 + 5t + 6 = (t+1)(t+2)(t+3)$$

$$6. 2d(d+3)^2(d-3) = 2d^4 + 6d^3 - 18d^2 - 54d$$

7. Algebraically determine the values of h and k to correctly complete the identity stated below.

$$2x^3 - 10x^2 + 11x - 7 = (x-4)(2x^2 + hx + 3) + k$$

8. Algebraically determine the values of h and k to correctly complete the identity stated below.

$$x^3 - 8x^2 + 5x + 53 = (x-5)^2(x+h) + k$$