NAME:

Test 2 (Lessons 3–4): Working with Polynomials

1) Compare expressions A and B. Explain if each expression is or is not a polynomial.

A: $x^3 + \frac{4}{3}x^2 - \frac{1}{2}$

B: $x^2 + \frac{2}{x}$

Simplify.

2) $(-7x^2 - 8x^2 + 6) - (16x^3 - 3x^2 + 3x - 7)$

3) $(3x - 5)(4x^2 + x + 1)$

4) $(2x + 7y)^2$

5) $(5x^3 + 9x^2y - 7xy^2) + (2xy^2 - 3x^2y - xy)$

Factor.

6) $3x^2 + 7xy - 20y^2$

7) $x^3 + 125$

8) Find the value of the unknown coefficient, P.
$(Px^3 + 7xy - 5y^2) - (6x^3 - Pxy + 4y^2) = -5x^3 + 8xy - 9y^2$

Factor.

9) $4x^3 - 32y^3$

10) $x^4 - 81$

11) Find the value of the unknown coefficients, M and N.
$(Mx - 8)(3x + N) = 15x^2 + 11x - 56$

12) Determine if a polynomial identity exists. Show and explain your work.
$(x - 4)(2x + 5)^2 = 4x^2(x + 1) - 5(11x + 20)$