

Name \_\_\_\_\_

Each of the 18 questions is worth 5 points plus 1 point for each of 10 homework problems for a total of 100 points

**Perform the indicated operation.**

1)  $(3x^3 + 5x^5 - 7 + 9x^4) - (9 - 6x^4 + 9x^5 + 7x^3)$

**Simplify the expression. Use positive exponents. Assume variables represent nonzero real numbers.**

2)  $(2p^9)(-2p^4)$

**Use the power rules for exponents to simplify. Write the answer in exponential form.**

3)  $(-4x^5y^2)^3$

**Find the product.**

$$4) (8p - 1)(64p^2 + 8p + 1)$$

$$5) (x + 7y)(x - 9y)$$

**Find the square.**

$$6) (6x + 11y)^2$$

**Find the product.**

7)  $(13a + 6c)(13a - 6c)$

**Factor out the greatest common factor.**

8)  $36x^7y^9 + 16x^2y^6 - 16x^5y^2$

9)  $5x^2 + 40x$

**Complete the factoring.**

10)  $x^2 + 4x - 45 = (x + 9)( \quad )$

**Factor completely.**

11)  $5x^3 + 10x^2 - 40x$

**Factor as completely as possible. If unfactorable, indicate that the polynomial is prime.**

12)  $4y^2 + 18y - 10$

13)  $16x^2 - 56x - 32$

**Factor completely.**

14)  $100k^2 - 81m^2$

15)  $x^4 - 81$

**Solve the equation.**

16)  $6b^2 + 25b + 17 = -8$

**Solve the problem.**

17) Two cars leave an intersection. One car travels north; the other east. When the car traveling north had gone 15 miles, the distance between the cars was 5 miles more than the distance traveled by the car heading east. How far had the eastbound car traveled?

18) A painter leans a ladder against one wall of a house. The ladder is 29 ft long. The base of the ladder is 22 ft from the house. How high is the wall? Round approximations to the nearest tenth.

