

Name \_\_\_\_\_

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

**Simplify the expression so that no negative exponents appear in the final result. Assume all variables represent nonzero numbers.**

1)  $(5x^{-4})^2(x^3)^{-4}$

**Express the number in scientific notation.**

2) 0.0000042214

**Add or subtract as indicated.**

3)  $(5n^5 - 5n - 6n^4) + (2n^4 + 7n^5 - 7n)$

4)  $(7x^6 + 4x^8 - 4 + 8x^7) - (8 + 3x^7 + 8x^8 + 5x^6)$

**Find the product.**

5)  $(p + 6q)(p - 6q)$

6)  $(5y - 6)(25y^2 + 30y + 36)$

**Divide.**

7)  $\frac{x^2 + 7x + 10}{x + 2}$

8)  $\frac{-9x^3 - 15x^2 - 16x - 4}{-3x - 1}$

**Factor out the greatest common factor. Simplify the factors, if possible.**

9)  $36x^8y^9 + 30x^3y^7 + 42x^6y^4$

**Factor by grouping.**

10)  $s^2 + 4s + 3s + 12$

**Factor the trinomial completely.**

11)  $x^2 - x - 90$

12)  $9x^2 - 27xy - 36y^2$

**Factor the polynomial.**

13)  $36x^2 - 84xy + 49y^2$

**Factor the polynomial completely.**

14)  $27a^3 - 64b^3$

15)  $12x^2 + 17x + 6$

16)  $10a^3 + 6a^2b - 15ab^2 - 9b^3$

**Solve the equation.**

17)  $(x + 6)(x - 3)(x - 12) = 0$

**Find all solutions by factoring.**

18)  $2x^2 + 24 = x^2 + 11x$