

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) $(6x^{-5})^3(x^2)^{-3}$

Express the number in scientific notation.

2) 0.00002757

Add or subtract as indicated.

3) $(5n^7 - 8n - 7n^5) + (-3n^5 + 6n^7 + 2n)$

$$4) (-2x^3 + 5x^5 + 4 - 4x^4) - (3 - 7x^4 + 7x^5 - 4x^3)$$

Find the product.

$$5) (p + 13q)(p - 13q)$$

$$6) (4y - 5)(16y^2 + 20y + 25)$$

Divide.

$$7) \frac{x^2 + 8x + 15}{x + 5}$$

$$8) \frac{-10x^3 - 23x^2 - 15x + 4}{5x - 1}$$

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

$$9) 72x^8y^6 + 120x^2y^4 + 60x^5y^2$$

Factor by grouping.

10) $x^2 + 5x + 9x + 45$

Factor the trinomial completely.

11) $x^2 - x - 30$

12) $7x^2 - 21xy - 28y^2$

Factor the polynomial.

13) $16x^2 - 40xy + 25y^2$

Factor the polynomial completely.

14) $125a^3 - 8b^3$

15) $15x^2 + 22x + 8$

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

Solve the equation.

17) $(x + 3)(x - 4)(x - 14) = 0$

Find all solutions by factoring.

18) $2x^2 + 20 = x^2 + 9x$