Worksheet Chapter 5 Name _____

Direction: Write neatly; show your work in an organized fashion.

1. Simplify: $\left(\frac{3t^4}{2s^3}\right)^2$	2. Simplify: $(3x^5 - 4x^4 + 2x^2 + 3) - (2x^5 - 4x^4 + 3x^3 + 4x^2 - 5)$
3. Simplify: $(2x + 3y)(x - 5y)$	4. Simplify: $(x - 9)^2$
5. Simplify: $(4x^2 - 5x + 1)(3x - 2)$	6. Divide: $(6x^3 - 5x^2 - 13x + 13) \div (2x + 3)$
7. Simplify: $(2x^{-3}y)^{-2}$	8. Simplify: $\left(\frac{a^{-5}b}{a^8b^8}\right)$

Worksheet Chapter 5 **SOLUTIONS**

1. Simplify: $\left(\frac{3t^4}{2s^3}\right)^2$

$= \frac{3^2(t^4)^2}{2^2(s^3)^2} = \frac{9t^8}{4s^6}$

2. Simplify:
$(3x^5 - 4x^4 + 2x^2 + 3) - (2x^5 - 4x^4 + 3x^3 + 4x^2 - 5)$

$= 3x^5 - 4x^4 + 2x^2 + 3 - 2x^5 + 4x^4 - 3x^3 - 4x^2 + 5$

$= 3x^5 - 2x^5 - 4x^4 + 4x^4 - 3x^3 + 2x^2 - 4x^2 + 3 + 5$

$= x^5 - 3x^3 - 2x^2 + 8$

3. Simplify: $(2x + 3y)(x - 5y)$

$= 2x^2 - 10xy + 3xy - 15y^2$

$= 2x^2 - 7xy - 15y^2$

4. Simplify: $(x - 9)^2$

$= x^2 - 9x - 9x + 81$

$= x^2 - 18x + 81$

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

$4x^2 - 5x + 1$
$3x - 2$
$-8x^2 + 10x - 2$
$12x^3 - 15x^2 + 3x$

$12x^3 - 23x^2 + 13x - 2$

6. Divide: $(6x^3 - 5x^2 - 13x + 13) \div (2x + 3)$

$3x^2 - 7x + 4 + \left(\frac{1}{2x+3}\right)$ remainder

$2x+3 \overline{)\, 6x^3 - 5x^2 - 13x + 13}$

$- 6x^3 - 9x^2$ (subtraction: switches signs)
$- 14x^2 - 13x$
$+14x^2 + 21x$ (subtraction: switches signs)
$8x + 13$
$- 8x - 12$ (subtract: switches singes)
1 (Remainder of 1)

7. Simplify: $(2x^{-3}y)^{-2}$

$= \left(\frac{2y}{x^3}\right)^{-2} = \left(\frac{x^3}{2y}\right)^2 = \frac{(x^3)^2}{(2y)^2}$

$= \frac{(x^3)^2}{2^2 y^2} = \frac{x^6}{4y^2}$

This shows every step.
It is OK if you did a few mentally.

8. Simplify: $\left(\frac{a^{-5}b}{a^8 b^8}\right)$

You can use the fraction cancellation way

$= \left(\frac{b}{a^5 a^8 b^8}\right) = \left(\frac{b}{a^{13} b^8}\right) = \frac{1}{a^{13} b^7}$

or you can use the subtraction of exponents rule

$= a^{-5-8} b^{1-8} = a^{-13} b^{-7} = \frac{1}{a^{13} b^7}$