Lesson 1: Introduction to Basic Algebra Worksheet

Section 1: Identifying Variables, Terms, and Coefficients

1) Identify the variables, terms, and coefficients in the expression:
   $7x + 3y - 5$

Section 2: Simplifying Expressions with Addition and Subtraction

2) Simplify:
   $4a + 7a$

3) Simplify:
   $10b - 3b + 2b$

4) Simplify:
   $9x + 5x - 4x$

5) Simplify:
   $8y - 3y + y$

Section 3: Simplifying Expressions with Multiplication and Division

6) Simplify by distributing:
   $3(x + 4)$

7) Simplify by distributing:
   $2a(3a + 5)$

8) Simplify:
   $\frac{12x}{3}$

9) Simplify:
   $\frac{15y + 10}{5}$

Section 4: Simplifying Expressions Using Exponent Rules

10) Simplify:
    $x^2 \times x^3$

11) Simplify:
    $a^5 \times a^2$

12) Simplify:
    $\frac{y^7}{y^3}$

13) Simplify:
$\frac{x^4}{x^2}$

14) Simplify:
$(b^3)^2$

15) Simplify:
$(2x)^3$

Answer Key:

1) Variables: $x\ and\ y$; Terms: $7x, 3y\ and -5$; Coefficients: $7\ (for\ x)\ and\ 3\ (for\ y)$
2) $4a + 7a = 11a$
3) $10b - 3b + 2b = 9b$
4) $9x + 5x - 4x = 10x$
5) $8y - 3y + y = 6y$
6) $3(x + 4) = 3x + 12$
7) $2a(3a + 5) = 6a^2 + 10a$
8) $\frac{12x}{3} = 4x$
9) $\frac{15y+10}{5} = 3y + 2$
10) $x^2 \times x^3 = x^5$
11) $a^5 \times a^2 = a^7$
12) $\frac{y^7}{y^3} = y^4$
13) $\frac{x^4}{x^2} = x^2$
14) $(b^3)^2 = b^6$
15) $(2x)^3 = 8x^3$