

# Section 1.1 – Expressions and Symbols

## Problem Set 3

Simplify the following expressions.

1.  $b^7 \cdot b^3$

2.  $a^4 \cdot b \cdot b^3 \cdot a^7$

3.  $x^3 \cdot x + y \cdot y$

4.  $(r^4 s^4)^4$

5.  $\left(\frac{12x^3 d^3}{18d} + \frac{x^{12} d^2}{2x^9}\right)^{10}$

6.  $\left(\frac{7x^2 y^{12}}{x}\right)^{13}$

7.  $(j \cdot k^4 \cdot r^3)^{15}$

8.  $\frac{8x^4}{8x^2}$

9.  $\frac{17h^6 b^4}{2h^2} + \left(\frac{b^2}{4}\right)^2 h^4$

10.  $\left((4w^7)^2 + \frac{16w^{15}}{4w}\right)^8$

11.  $\frac{18u^{13} v^7}{9u^2 v^2} + \frac{18u^{11} v^{12}}{6v^7}$

12.  $(e^3 - 3e^3)^7 + e^{21}$

13.  $x \cdot y^2 \cdot x^6 + x^7 \cdot y \cdot y$

14.  $\frac{a^2 n^{12}}{n^3}$

15.  $\frac{7q^4}{q^2} + \frac{7q^5}{q^4}$

16.  $\left(\frac{q^2 r}{r}\right)^7$