

**Your turn****Section 1**

Simplify each of the following:

1. $x^6 \times x^3$

x^{6+3}

x^9

2. $x^3 \times x^5$

x^{3+5}

x^8

3. $a^{11} \times a^8$

a^{11+8}

a^{19}

4. $b^7 \times b^4$

b^{7+4}

b^{11}

5. $y^{10} \div y^5$

y^{10-5}

y^5

6. $x^6 \div x$

x^{6-1}

x^5

7. $\frac{d^6}{d^2}$

d^{6-2}

d^4

8. $\frac{g^9}{g^4}$

g^{9-4}

g^5

Section 2

Find the value of each of the following:

1. x^0

1

3. 1^{24}

1

5. z^0

1

2. 10^0

1

4. 1^{16}

1

Section 3

Simplify each of the following:

1. $(x^2)^3$

$x^{2 \times 3}$

x^6

3. $(a^2)^4$

$a^{2 \times 4}$

a^8

5. $(\frac{1}{3})^2$

$\frac{1^2}{3^2} = \frac{1}{9}$

2. $(y^3)^5$

$y^{3 \times 5}$

y^{15}

4. $(b^{10})^2$

$b^{10 \times 2}$

b^{20}

6. $(\frac{4}{5})^3$

$\frac{4^3}{5^3} = \frac{64}{125}$

Section 4

1. Simplify $x^3 \times x^{-5}$

$$x^{3 + -5}$$

$$x^{-2}$$

2. Simplify $y^{-6} \times y^{-2}$

$$y^{-6 + -2}$$

$$y^{-8}$$

3. Simplify $\frac{x^4}{x^{-2}}$

$$x^{4 - -2}$$

$$x^6$$

4. Write $(1\frac{1}{4})^2$ in its simplest form.

$$1\frac{1}{4} = \frac{5}{4}$$

$$\frac{5^2}{4^2} = \frac{25}{16} \text{ or } 1\frac{9}{16}$$

5. Simplify $c^{-2} \times c^{-3}$

$$c^{-2 + -3}$$

$$c^{-5}$$

6. Write $(5\frac{2}{5})^2$ in its simplest form.

$$5\frac{2}{5} = \frac{27}{5}$$

$$\frac{27^2}{5^2} = \frac{729}{25} \text{ or } 29\frac{4}{25}$$

7. Find the value of $2^4 \div 2^{-4}$

$$2^{4 - -4}$$

$$2^8 = 256$$

8. Simplify $(3x^2)^3$

$$3^3 = 3 \times 3 \times 3 = 27$$

$$27x^{2 \times 3}$$

$$27x^6$$

Challenge

Simplify $2x^5y^{-2} \times 3x^{-7}y^{-6}$

$$6x^{-2}y^{-8}$$