

**Polynomials****Multiplying Exponents**

|                                 |                                |
|---------------------------------|--------------------------------|
| Rule: $x^a \cdot x^b = x^{a+b}$ | Example: $a^4 \cdot a^3 = a^7$ |
|---------------------------------|--------------------------------|

Multiply the polynomials.

1.  $c^1 \cdot c^2 \cdot c^3 = c^6$

2.  $e \cdot e^2 \cdot e^3 \cdot e^4 \cdot e^5 = e^{15}$

3.  $a^3 \cdot a^4 \cdot a^7 \cdot a = a^{15}$

4.  $(3xy^2)(2x^2y^3) = 6x^3y^5$

5.  $(2a^2b)(4ab^2) = 8a^3b^3$

6.  $(5f)(-3f^3)(2f) = -30f^5$

7.  $(m^2n)(4mn^2)(mn) = 4m^4n^4$

8.  $(4k^2)(-3k)(3k^5) = -36k^8$

9.  $(-2c^4)(4cd)(-cd^2) = 8c^6d^3$

10.  $(3x^3)(3x^4)(-3x^2) = -27x^9$

11.  $(-1)(x)(-x^2)(x^3)(-x^2) = -1x^8$

12.  $(3x^2)(-3x^5) = -9x^7$

13.  $(c^2h)(3ch^3)(2c^3h^4) = 6c^7h^8$

14.  $(-4p^3)(-4p^6)(-2p^9) = -32p^{18}$

15.  $(12c^3)(2g^3)(4ch) = 96c^4g^3h$

16.  $(4x^2y^3)(x^3y)(-x^2y^2) = -4x^7y^6$

17.  $(-4f^3)(-3m^3) = 12f^3m^3$

18.  $(2c^2d^2)(-5cd^4) = -10c^3d^6$

19.  $(4c^2)(-5c^7) = -20c^9$

20.  $(3x)(-4y^2)(6x^3y) = -72x^4y^3$

**Polynomials**

**Dividing Exponents**

Rule:  $\frac{x^a}{x^b} = x^{a-b}$       Example:  $\frac{x^6}{x^4} = x^{6-4} = x^2$        $\frac{x^3}{x^{-2}} = x^{3-(-2)} = x^5$

Divide the polynomials.

1.  $\frac{-12m^5}{6m} = -2m^4$

2.  $\frac{x^3}{x^2} = x$

3.  $\frac{9a^3b^5}{-3ab^2} = -3a^2b^3$

4.  $\frac{(6x^3)(3x^8)}{-12x^{10}} = \frac{-3x}{2}$

5.  $\frac{16c^3}{-4c^2} = -4c$

6.  $\frac{d^3}{d^2} = d$

7.  $\frac{-3p^8}{6p^2} = -\frac{p^6}{2}$

8.  $\frac{-54c^2d^4}{-8cd} = \frac{27cd^3}{4}$

9.  $\frac{49r^{13}}{-7r^8} = -7r^5$

10.  $\frac{45k^7r^3}{-3k^5} = -15k^2r^3$

11.  $\frac{-14c^{15}d^3}{-2c^9d} = 7c^6d^2$

12.  $\frac{21k^9}{(3k)(7k^4)} = k^4$

13.  $\frac{(5k)(-8k^5)}{10k^3} = -4k^3$

14.  $\frac{(110c^3)(-c^9)}{11c^5} = -10c^7$

15.  $\frac{24x^2y}{-4x^2} = -6y$

16.  $\frac{4x^2y^3z^4}{2xy^2z^3} = 2xyz$

17.  $\frac{9a^{11}}{a^3} = 9a^8$

18.  $\frac{(3xy)(4x^2y)}{-6xy^2} = \frac{2x^3y^2}{-6xy^2} = \frac{-x^2}{-3}$

19.  $\frac{22y^5z^8}{2yz^7} = 11y^4z$

20.  $\frac{b^{14}c^9}{b^5c^4} = b^9c^5$