

1. Simplify. Assume that no variable equals 0.

a. $(3x^2y^{-3})(-2x^3y^5)$

d. $\left(\frac{p^2r^3}{pr^4}\right)^2$

b. $\frac{3a^4b^3c}{6a^2b^5c^2}$

e. $(4m^2 - 6m + 5) - (6m^2 + 3m - 1)$

c. $4t(3rt - r)$

f. $(x + y)(x^2 + 2xy - y^2)$

2. Find $3f(a - 4) - 2h(a)$ if $f(x) = x^2 + 3x$ and $h(x) = 2x^2 - 3x + 5$

3. Simplify:

a. $(4r^3 - 8r^2 - 13r + 20) \div (2r - 5)$

Is $(2r - 5)$ a factor?

b. $\frac{3x^3 - 16x^2 + 9x - 24}{x - 5}$

Is $(x - 5)$ a factor?

c. $(6y^3 + 13y^2 - 10y - 24) \div (y + 2)$

d. $(a^4 + 5a^3 + 2a^2 - 6a + 4)(a + 2)^{-1}$

e. $(4x^6 - 5x^4 + 3x^2 - x) \div (2a + 1)$

4. Find $p(-3)$ if $p(x) = 4p^4 + 10p^3 + p - 5$

5. Factor completely. If the polynomial is not factorable, write *prime*.

a. $a^4 - 16$

b. $x^3 + 8y^3$

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c. $54x^3y - 16y^4$

f. $3k^4 + 27k^3 - 7k - 63$

d. $6ay + 4by - 2cy + 3az + 2bz - cz$

g. $2x^4 - 16x$

e. $2a^3 + 432$

h. $6x^4 + 13x^2 - 5$

6. Solve each equation.

a. $x^3 + 2x^2 - 35x = 0$

c. $y^4 - 14y^2 + 45 = 0$

b. $8x^4 - 10x^2 + 3 = 0$

d. $2x^3 - 12x^2 = -17x$

Review 5.1, 5.5, and 5.2
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