

### Quiz review: Exponents, Fractions, and Factoring

Directions: Carefully do each problem on a separate sheet of paper.

- $\frac{3}{x-2} + 5(x+1)^{-1}$
- $\frac{(3x^4)^2(2x^{-1})}{6x^4}$
- $\frac{[2(x-3)]^4(x+2)^{-1}}{(x-3)^2(x+2)^{-4}}$
- $\frac{x+1}{x^2+8x+7} + \frac{3x}{x^2+4x-21}$
- $\frac{x+3}{(x+2)^3} \cdot \left(\frac{x+3}{x^2-x-6}\right)^{-1}$
- $\frac{x^3+2x^2-5x-10}{(x^2-5)^6(x+2)^{-3}}$
- $\left(\frac{1}{x}+3\right)^2$
- $(x-7)^{-2}$
- $\frac{2}{x^2+x} - \frac{4}{x+1} + \frac{1}{x}$
- $\frac{x^4-49}{x^3-5x^2+7x-35} \cdot (x-5)^4$
- $(x+5)\sqrt{x+5}$
- $(x-8)^2\sqrt{x-8}$
- $\frac{(x+3)^0}{x-5} - \frac{x^0}{x+7}$
- $x+x^{-1}+x^{-2}$
- $(x^2-4) \cdot \left(\frac{x}{x+2} - \frac{1}{x-2}\right)$
- $\frac{x+2}{\sqrt{x+2}}$
- $(x^{-1}-x^{-2})^2$

**Answers**

1.  $\frac{8x-7}{(x-2)(x+1)}$  2.  $3x^3$  3.  $16(x-3)^2(x+2)^3$  4.  $\frac{4x-3}{(x+7)(x-3)}$  5.  $\frac{x-3}{(x+2)^2}$

6.  $\frac{(x+2)^4}{(x^2-5)^5}$  7.  $\frac{1}{x^2} + \frac{6}{x} + 9$  8.  $\frac{1}{(x-7)^2} = \frac{1}{x^2-14x+49}$  9.  $\frac{3-3x}{x(x+1)}$  10.  $(x^2-7)(x-5)^3$

11.  $(x+5)^{3/2}$  12.  $(x-8)^{5/2}$  13.  $\frac{12}{(x-5)(x+7)}$  14.  $x + \frac{1}{x} + \frac{1}{x^2} = \frac{x^3+x+1}{x^2}$

15.  $x^2 - 3x - 2$  16.  $\sqrt{x+2}$  17.  $\frac{1}{x^2} - \frac{2}{x^3} + \frac{1}{x^4}$