

## Harder Quadratic

Solve the following equations for  $x$ .

- $\frac{4}{x-2} - \frac{9}{x} = 1.$   $x = 3$  or  $x = -6$
- $\frac{6}{x+1} - \frac{4}{x+2} = 1.$   $x = 2$  or  $x = -3$
- $\frac{5}{x+6} + \frac{2}{x+3} = 2.$   $x = -1$  or  $x = -\frac{9}{2}$
- $\frac{1}{x+2} - \frac{4}{x+3} = -1.$   $x = -1$  (repeated)
- $\frac{4}{x+1} + \frac{3}{x+2} = 3.$   $x = 1$  or  $x = -\frac{5}{3}$
- $\frac{5}{x+1} - \frac{6}{x+2} = 2.$   $x = 0$  or  $x = -\frac{7}{2}$
- $\frac{10}{x+1} = 3 - \frac{4}{x}.$   $x = 4$  or  $x = -\frac{1}{3}$
- $\frac{5}{x} - \frac{4}{x+1} = 3.$   $x = 1$  or  $x = -\frac{5}{3}$
- $\frac{4}{2x+1} - \frac{2}{2x+3} = \frac{3}{2}.$   $x = -\frac{11}{6}$  or  $x = \frac{1}{2}$
- $\frac{3}{2x+5} + \frac{2}{x+5} = 1.$   $x = 0$  or  $x = -4$
- $x^2 = r^2.$   $x = r$  or  $x = -r$
- $2x^2 + z^2 = 3xz.$   $x = z$  or  $x = \frac{z}{2}$
- $x^2 + 4rx = 5r^2.$   $x = r$  or  $x = -5r$
- $x^2 + ax = 2a^2.$   $x = a$  or  $x = -2a$
- $x(3x^2 + 14x - 5) = 0.$   $x = 0$  or  $x = -5$  or  $x = \frac{1}{3}$
- $x^2 + 7r^2 = 8rx.$   $x = r$  or  $x = 7r$
- $x^2 = qx + 2q^2.$   $x = -q$  or  $x = 2q$
- $x^2 + e^3 = ex + e^2x.$   $x = e$  or  $x = e^2$
- $2pq + 2px = x^2 + qx.$   $x = -q$  or  $x = 2p$
- $2x^2 + 4xz = xy + 2yz.$   $x = -2z$  or  $x = \frac{y}{2}$
- $(x+2)(x^2 - 2x - 15) = 0.$   $x = -2$  or  $x = -3$  or  $x = 5$
- $x^4 + 36 = 13x^2.$   $x = \pm 3$  or  $x = \pm 2$
- $\frac{x+6}{x+2} + \frac{x^2+1}{x+3} = x+1.$   $x = 2$  or  $x = -\frac{7}{3}$