

*"You don't learn to walk by following the rules.
You learn by doing, and by falling over."
-Richard Branson*

1. Factor into linear factors whenever possible. Then solve.

(a) $x^2 + 2x + 1 = 0$

Solution: $(x + 1)^2 = 0$, $x = -1$

(a) $x^2 + 6x + 8 = 0$

Solution: $(x + 4)(x + 2) = 0$, $x = -4, -2$

(b) $x^2 - 2x - 24 = 0$

Solution: $(x + 4)(x - 6) = 0$, $x = -4, 6$

(c) $3x^2 + x - 2 = 0$

Solution: $(x + 1)(3x - 2) = 0$, $x = -1, \frac{2}{3}$

(d) $2x^2 + x - 3 = 0$

Solution: $(2x + 3)(x - 1) = 0$, $x = 1, -\frac{3}{2}$

(e) $x^2 - 4 = 0$

Solution: $(x - 2)(x + 2) = 0$, $x = 2, -2$

(f) $9x^2 - 16 = 0$

Solution: $(3x + 4)(3x - 4) = 0$, $x = -\frac{4}{3}, \frac{4}{3}$

(g) $x^3 + 8 = 0$

Solution: $(x + 2)(x^2 - 2x + 4) = 0$, $x = -2$

2. Solve.

(a) $\frac{1}{x-3} = 2$

Solution: $x = \frac{7}{2}$

(a) $\frac{2x-1}{2} + \frac{-1}{x-2} = 0$

Solution: $x = 0, \frac{5}{2}$

(b) $\frac{1}{x+1} + \frac{2}{x-1} = -1$

Solution: $x = 0, -3$