

Using Graphs to Solve Non-Linear Equations



Use the graphs to find approximate solutions to the following equations.

The diagram shows:

■ $y = x^2 - x - 2$
■ $y = x$
■ $y = 1$

1)

a. $x^2 - x - 2 = 0$

b. $x^2 - x - 2 = x$

c. $x^2 - x - 2 = 1$

d. $x^2 - x - 3 = 0$

The diagram shows:

■ $y = x^3 + 3x^2 - 1$
■ $y = -\frac{1}{2}x$
■ $y = x + 2$

2)

a. $x^3 + 3x^2 - 1 = x + 2$

b. $x^3 + 3x^2 - 1 = -\frac{1}{2}x$

c. $x^3 + 3x^2 - 1 = -1$

d. $-\frac{1}{2}x = x + 2$

The diagram shows: ■ $y = x^2 + 2x - 3$

3)

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

b. $x^2 + 2x - 3 = -2$

c. $x^2 + 2x - 5 = 0$

d. $x^2 + 2x - 3 = x$

The diagram shows: ■ $y = 5 - x^2$

4)

a. $5 - x^2 = 0$

b. $5 - x^2 = x + 2$

c. $2 - x^2 = 0$

d. $1 - x^2 = x$

The diagram shows: ■ $y = x^3 - 4x^2 + x + 4$

5)

a. $x^3 - 4x^2 + x + 4 = 0$

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

c. $x^3 - 4x^2 + 2x + 6 = 0$

d. $x^3 - 3x^2 + x + 4 = 0$

The diagram shows: ■ $y = \frac{1}{x}$

6)

a. $\frac{1}{x} = -3$

b. $\frac{1}{x} = x$

c. $1 = x^2$

d. $1 = 2x^2 + x$
