

HW: 2.7B Solving Equations in One Variable

Solve the equation algebraically. Support your answer numerically and identify any extraneous solutions.

1. $\frac{x-2}{3} + \frac{x+5}{3} = \frac{1}{3}$

2. $x + 5 = \frac{14}{x}$

3. $x + \frac{4x}{x-3} = \frac{12}{x-3}$

Solve the equation algebraically and graphically. Check for extraneous solutions.

4. $x + \frac{10}{x} = 7$

5. $x + \frac{12}{x} = 7$

6. $2 - \frac{1}{x+1} = \frac{1}{x^2+x}$

Solve the equation algebraically. Check for extraneous solutions. Support your answer graphically.

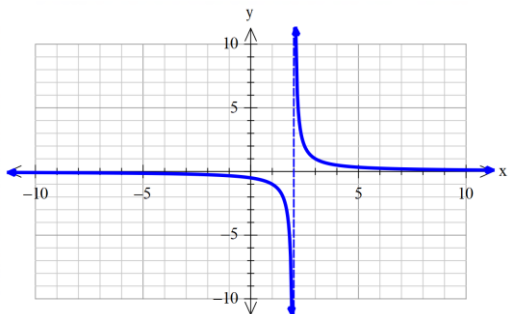
7. $\frac{3x}{x+5} + \frac{1}{x-2} = \frac{7}{x^2+3x-10}$

8. $\frac{x-3}{x} - \frac{3}{x+1} + \frac{3}{x^2+x} = 0$

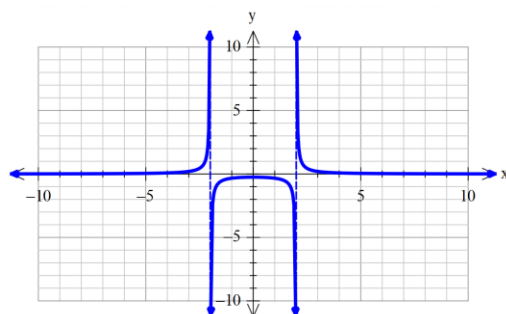
9. $\frac{3}{x+2} + \frac{6}{x^2+2x} = \frac{3-x}{x}$

Two possible solutions to the equation $f(x)$ are listed. Use the graph of $y = f(x)$ to decide which, if any are extraneous.

10. $x = -5$ or $x = -2$



11. $x = -2$ or $x = 2$



Solve the equation.

12. $x + \frac{2}{x-1} = 5$

13. $\frac{x^2 - 2x + 1}{x + 5} = 0$

14. $\frac{4x}{x+4} + \frac{5}{x-1} = \frac{15}{x^2 + 3x - 4}$

15. $x^2 + \frac{5}{x} = 8$

16. Suppose that x mL of pure acid are added to 125 mL of a 60% acid solution. How many mL of pure acid must be added to obtain a solution of 83% acid?

a) Explain why the concentration $C(x)$ of the new mixture is $C(x) = \frac{x + 6(125)}{x + 125}$

b) Write and solve an equation that answers the question of this problem.