Section 6.4 Extra Practice

Wherever applicable, state the non-permissible values for the variables.

1. Solve and check each equation.

a) $\dfrac{2x}{3} = \dfrac{x}{4} + \dfrac{5}{6}$

b) $\dfrac{5}{2a} = 3 - \dfrac{2}{a}$

c) $\dfrac{x-3}{x^2} = \dfrac{11}{15x} - \dfrac{2}{5x}$

d) $\dfrac{x^2}{3} + \dfrac{11x}{18} = \dfrac{1}{9}$

e) $2x = \dfrac{3}{x} - \dfrac{5}{2}$

f) $\dfrac{x}{3} = \dfrac{2}{x} + \dfrac{x+1}{3}$

2. Solve each rational equation.

a) $\dfrac{3}{x+3} = \dfrac{x+15}{x+3} - 5$

b) $\dfrac{x}{x+1} - \dfrac{x+4}{x+1} = \dfrac{6}{x}$

c) $\dfrac{2}{x-3} + \dfrac{3}{x} = 2$

d) $\dfrac{x}{x-2} + \dfrac{2}{x+2} = 1$

3. Solve.

a) $\dfrac{21}{5x+3} = -3$

b) $\dfrac{x+1}{x-3} = \dfrac{x}{x-5}$

c) $\dfrac{x+4}{x-2} = \dfrac{x-4}{x+4}$

d) $\dfrac{x-2}{x} = \dfrac{2-x}{x+1}$

4. Solve the following equations.

a) $\dfrac{x}{x-3} + \dfrac{x^2+9}{x^2-9} = \dfrac{2x}{x+3}$

b) $\dfrac{5}{x+1} - \dfrac{1}{x^2-x-2} = \dfrac{3}{x-2}$

c) $\dfrac{x+5}{2x+4} = \dfrac{x}{x-3} - \dfrac{2x+9}{x^2-x-6}$

d) $\dfrac{3x}{2x+3} + \dfrac{20}{2x^2-x-6} = \dfrac{4}{x-2}$

5. Solve each rational equation. Round answers to the nearest hundredth.

a) $\dfrac{x}{2x+3} + \dfrac{5}{8x+12} = \dfrac{x+1}{5}$

b) $\dfrac{x-1}{x} - \dfrac{(x+2)}{x^2} = \dfrac{x+1}{3x}$

c) $\dfrac{3}{2x-3} + \dfrac{2}{3x+2} = \dfrac{1}{x}$

d) $\dfrac{x-5}{2x+10} - \dfrac{8}{x^2-25} = \dfrac{x}{x-5}$

6. When solving the following rational equation $\dfrac{5x}{2x+1} + \dfrac{x}{x-1} = \dfrac{3}{2x^2-x-1}$, Petra determines that $x = 1$.

a) Without solving the equation, do you agree with Petra's solution? Explain.

b) Solve the equation.

7. The sum of two integers is 12. The difference in their reciprocals is $\dfrac{2}{9}$. Determine the two integers.

8. John's family travels 300 km from their home to a family reunion. His cousin Susan and her family take the same amount of time to travel 200 km from their home. Determine the speed of both vehicles given that one of the vehicles travels 30 km/h faster than the other.