9-6 Practice

Solving Rational Equations and Inequalities

Solve each equation or inequality. Check your solutions.

1. $\dfrac{12}{x} + \dfrac{3}{4} = \dfrac{3}{2}$

2. $\dfrac{x}{x-1} - 1 = \dfrac{x}{2}$

3. $\dfrac{p+10}{p^2-2} = \dfrac{4}{p}$

4. $\dfrac{s}{s+2} + s = \dfrac{5s+8}{s+2}$

5. $\dfrac{5}{y-5} = \dfrac{y}{y-5} - 1$

6. $\dfrac{1}{3x-2} + \dfrac{5}{x} = 0$

7. $\dfrac{5}{t} < \dfrac{9}{2t+1}$

8. $\dfrac{1}{2h} + \dfrac{5}{h} = \dfrac{3}{h-1}$

9. $\dfrac{4}{w-2} = \dfrac{-1}{w+3}$

10. $5 - \dfrac{3}{a} < \dfrac{7}{a}$

11. $\dfrac{4}{5x} + \dfrac{1}{10} < \dfrac{3}{2x}$

12. $8 + \dfrac{3}{y} > \dfrac{19}{y}$

13. $\dfrac{4}{p} + \dfrac{1}{3p} < \dfrac{1}{5}$

14. $\dfrac{6}{x-1} = \dfrac{4}{x-2} + \dfrac{2}{x+1}$

15. $g + \dfrac{g}{g-2} = \dfrac{2}{g-2}$

16. $b + \dfrac{2b}{b-1} = 1 - \dfrac{b-3}{b-1}$

17. $\dfrac{1}{n+2} + \dfrac{1}{n-2} = \dfrac{3}{n^2-4}$

18. $\dfrac{c+1}{c-3} = 4 - \dfrac{12}{c^2-2c-3}$

19. $\dfrac{3}{k-3} + \dfrac{4}{k-4} = \dfrac{25}{k^2-7k+12}$

20. $\dfrac{4v}{v-1} - \dfrac{5v}{v-2} = \dfrac{2}{v^2-3v+2}$

21. $\dfrac{y}{y+2} + \dfrac{7}{y-5} = \dfrac{14}{y^2-3y-10}$

22. $\dfrac{x^2+4}{x^2-4} + \dfrac{x}{2-x} = \dfrac{2}{x+2}$

23. $\dfrac{r}{r+4} + \dfrac{4}{r-4} = \dfrac{r^2+16}{r^2-16}$

24. $3 = \dfrac{6a-1}{2a+7} + \dfrac{22}{a+5}$

27. BASKETBALL Kiana has made 9 of 19 free throws so far this season. Her goal is to make 60% of her free throws. If Kiana makes her next x free throws in a row, the function $f(x) = \dfrac{9+x}{19+x}$ represents Kiana's new ratio of free throws made. How many successful free throws in a row will raise Kiana's percent made to 60%? Is this a reasonable answer? Explain.

28. OPTICS The lens equation $\dfrac{1}{p} + \dfrac{1}{q} = \dfrac{1}{f}$ relates the distance p of an object from a lens, the distance q of the image of the object from the lens, and the focal length f of the lens. What is the distance of an object from a lens if the image of the object is 5 centimeters from the lens and the focal length of the lens is 4 centimeters? Is this a reasonable answer? Explain.