

Section 9-5 Equations & Inequalities

Name the excluded (or restricted) value(s) for each equation or inequality. When in doubt...

1) $\frac{c}{c-7} = \frac{2}{c+10}$

c ≠ _____

2) $\frac{1}{x} - 10 \geq \frac{5}{3x+4}$

x ≠ _____

3) $\frac{y+2}{y-2} < \frac{y-6}{y+11}$

y ≠ _____

4) $\frac{8}{n^2-64} = \frac{2}{3} + \frac{3}{3n^2+19n-14}$

n ≠ _____

5) $\frac{r}{r^2-r} - \frac{9}{r^2+7r-8} \leq \frac{2r}{5r+10}$

r ≠ _____

Solve each equation by first finding common denominators.

6) $\frac{5}{6} = \frac{x+7}{2x+2}$

7) $\frac{4}{x} = \frac{x+3}{x+5}$

8) $\frac{2}{x} - 3 = \frac{11}{x}$

9) $\frac{6}{z-5} - 4 = \frac{-6}{5-z}$

10) $\frac{4}{3m} + \frac{m}{2} = \frac{2}{m}$

11) $\frac{1}{x} = \frac{3}{x^2-x} - \frac{2}{x-1}$

$$12) \frac{y}{5-y} + \frac{y-1}{y^2-25} = \frac{-2}{y-5}$$

$$13) \frac{5}{2w+8} - \frac{3}{w^2-16} = \frac{1}{3w-12}$$

Solve each rational inequality, then use the solution and excluded values to create a number line. Use the number line to test values, then write a solution set based on the results.

$$14) \frac{3}{a+1} \geq 3$$

$$15) \frac{1}{x} \geq 4x$$

$$16) \frac{1}{2p} + \frac{4}{5p} > \frac{2}{3}$$

$$17) \frac{3}{2x} - \frac{2}{x} > \frac{1}{4}$$

$$18) \frac{4}{x-1} + \frac{5}{x} < 2$$

$$19) \frac{3}{x^2-1} + 1 > \frac{2}{x-1}$$