

Review Topics WS #2

Solve each equation. Remember to check for extraneous solutions.

1) $\frac{5}{2n} = \frac{1}{2} + \frac{1}{n}$

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

3) $\frac{3}{2m^2} = \frac{1}{4m^2} - \frac{m+1}{2m^2}$

4) $\frac{1}{5r^2} = \frac{1}{r^2} - \frac{1}{5r}$

5) $\frac{x^2 + 2x - 15}{6x} = \frac{5}{3} - \frac{3x+1}{6x}$

6) $\frac{20x+24}{x-5} = 1 + \frac{3x^2+18x+15}{x-5}$

7) $\frac{4}{p^2-9} = \frac{6p+6}{p+3} + \frac{2p+4}{p-3}$

8) $\frac{2a^2+18a+40}{a^2-2a-15} - \frac{2a+6}{a-5} = \frac{1}{a^2-2a-15}$

9) $\frac{2}{m^2-2m} = 1 - \frac{1}{m^2-2m}$

10) $\frac{p^2+2p+1}{2p^2-8p} + \frac{1}{2p^2-8p} = \frac{1}{p^2-4p}$

Simplify each expression.

11) $\frac{\frac{x-2}{4} - \frac{x-2}{x}}{\frac{x-2}{16} + \frac{3x}{x-2}}$

12) $\frac{\frac{4}{25} + \frac{2m}{5}}{\frac{5}{4} + \frac{25}{m}}$

13) $\frac{\frac{4}{a^2} - \frac{8}{3}}{\frac{4}{3} - \frac{9}{2}}$

14) $\frac{\frac{3a+4}{a} + \frac{a^2}{3a+4}}{\frac{a}{3} + \frac{5a}{3a+4}}$

15) $\frac{\frac{m+1}{m^2} - \frac{25}{9}}{\frac{3}{m} + \frac{5m+5}{3}}$

16) $\frac{\frac{a}{a+2} + \frac{a^2}{3}}{\frac{9}{2a} - \frac{a}{4}}$

17) $\frac{9}{b+8} \cdot \frac{3b+8}{27b+72}$

18) $\frac{8n-72}{5n} \cdot \frac{3n-3}{24n-24}$

19) $\frac{8}{56m+64} \cdot \frac{7m^2+m-8}{100m^2}$

20) $\frac{4x-40}{28x+8} \cdot \frac{49x^2+77x+18}{7x^2+58x+63}$

21) $\frac{6}{18b+30} \div \frac{b+8}{12b+20}$

22) $\frac{1}{5x+8} \div \frac{2}{5x^2+3x-8}$

23) $\frac{14n^2+19n+6}{6n^2-3n-3} \div \frac{49n^3+42n^2}{3n^2-9n+6}$

24) $\frac{9v^2+42v+40}{7v^2-60v-100} \div \frac{9v^2+42v+40}{70v+100}$

Solve each system of equations.

25) $\begin{cases} 5x^2 + y^2 + 4x - 2 = 0 \\ 3x + y + 4 = 0 \end{cases}$

26) $\begin{cases} x^2 + y^2 + 19x + y + 78 = 0 \\ 2x - y = -4 \end{cases}$

27) $\begin{cases} x^2 - y^2 + 8x + 8y - 75 = 0 \\ -x^2 + y^2 + 4x - 8y + 3 = 0 \end{cases}$

28) $\begin{cases} x^2 - y^2 - 10x + 4y + 20 = 0 \\ x^2 + y^2 - 10x - 4y + 28 = 0 \end{cases}$

Answers to Review Topics WS #2

1) $\{3\}$

2) $\left\{\frac{5}{2}\right\}$

3) $\left\{-\frac{7}{2}\right\}$

4) $\{4\}$

5) $\{7, -2\}$

6) $\left\{\frac{7}{3}, -2\right\}$

7) $\left\{\frac{5}{4}, -1\right\}$

8) $\left\{-\frac{7}{2}\right\}$

9) $\{3, -1\}$

10) $\{-2\}$

11) $\frac{4x^3 - 32x^2 + 80x - 64}{x^3 + 44x^2 + 4x}$

12) $\frac{16m + 40m^2}{125m + 2500}$

13) $\frac{-24 + 16a^2}{19a^2}$

14) $\frac{3a^3 + 27a^2 + 72a + 48}{3a^3 + 19a^2}$

15) $\frac{9m + 9 - 25m^2}{27m + 15m^3 + 15m^2}$

16) $\frac{4a^4 + 8a^3 + 12a^2}{54a - 3a^3 + 108 - 6a^2}$

17) $\frac{1}{b + 8}$

18) $\frac{n - 9}{5n}$

19) $\frac{m - 1}{100m^2}$

20) $\frac{x - 10}{x + 7}$

21) $\frac{4}{b + 8}$

22) $\frac{x - 1}{2}$

23) $\frac{n - 2}{7n^2}$

24) $\frac{10}{v - 10}$

25) $(-1, -1)$

26) No solution.

27) $(6, 9), (6, -1)$

28) $(4, 2), (6, 2)$