Algebra 2

Name_____

Assignment

Date_____ Period_____

Solve each equation. Remember to check for extraneous solutions.

1) $\dfrac{1}{a} = \dfrac{4a + 28}{7a^2} - \dfrac{1}{7a^2}$

2) $\dfrac{1}{x} = \dfrac{x + 6}{5x^2} - \dfrac{4x + 28}{5x^2}$

3) $\dfrac{1}{n} = \dfrac{1}{3n} + \dfrac{2n + 12}{n^2}$

4) $\dfrac{b - 1}{b^2} = \dfrac{5}{b^2} - \dfrac{b - 1}{5b^2}$

5) $\dfrac{v - 8}{v} = \dfrac{4v - 1}{v} - \dfrac{7v - 14}{2v}$

-1-

6) $\dfrac{1}{3x^2 - 20x + 12} = \dfrac{x - 7}{6x^2 - 40x + 24} + \dfrac{1}{6x^2 - 40x + 24}$

7) $\dfrac{1}{v} = \dfrac{7}{v^2 + 3v} - \dfrac{4}{v}$

8) $\dfrac{3}{k + 1} = \dfrac{1}{k^2 + 3k + 2} + \dfrac{1}{k + 1}$

9) $\dfrac{2}{7x - 6} + \dfrac{1}{7x^2 + 29x - 30} = \dfrac{4}{7x^2 + 29x - 30}$

10) $\dfrac{1}{2n} + 1 = \dfrac{4}{n}$

Simplify each expression.

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

12) $\dfrac{3}{r + 8} - \dfrac{4r}{r + 6}$

13) $\dfrac{7p}{3} - \dfrac{2}{2p+1}$

14) $\dfrac{5m}{4m} + \dfrac{8}{8m+8}$

15) $\dfrac{3}{7n-8} + \dfrac{7n}{n-5}$

16) $\dfrac{1}{x+5} \cdot \dfrac{3x^2 - 12x}{3x}$

17) $\dfrac{v-8}{v-5} \cdot \dfrac{5v^2 - 25v}{v-8}$

18) $\dfrac{6}{2n^2 + 10n} \cdot \dfrac{n-7}{6}$

19) $\dfrac{1}{b^2 + 5b - 14} \cdot \dfrac{-b^2 + 3b - 2}{b+10}$

20) $\dfrac{x+2}{x^2 + 7x + 10} \cdot \dfrac{9}{2x}$

21) $\dfrac{10k-15}{2k^2} \div \dfrac{10k-15}{9k^2}$

22) $\dfrac{x+3}{30x+36} \div \dfrac{1}{15x+18}$

23) $\dfrac{1}{n+8} \div \dfrac{56n^2}{8n^3+64n^2}$

24) $\dfrac{1}{2-p} \div \dfrac{6p^2}{6p^3-12p^2}$

25) $\dfrac{7}{8a^3-36a^2} \div \dfrac{1}{8a^3-36a^2}$

Simplify each and state the excluded values.

26) $\dfrac{n^2+4n+3}{n^2+11n+10}$

27) $\dfrac{n^2-2n-24}{n^2-13n+42}$

28) $\dfrac{5m}{m+3}$

29) $\dfrac{x^2 - 7x - 18}{4x - 40}$

30) $\dfrac{5r + 10}{r^2 + 11r + 18}$

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Solve each equation. Remember to check for extraneous solutions.

1) $\dfrac{1}{a} = \dfrac{4a + 28}{7a^2} - \dfrac{1}{7a^2}$

$\{9\}$

2) $\dfrac{1}{x} = \dfrac{x + 6}{5x^2} - \dfrac{4x + 28}{5x^2}$

$\left\{-\dfrac{11}{4}\right\}$

3) $\dfrac{1}{n} = \dfrac{1}{3n} + \dfrac{2n + 12}{n^2}$

$\{-9\}$

4) $\dfrac{b - 1}{b^2} = \dfrac{5}{b^2} - \dfrac{b - 1}{5b^2}$

$\left\{\dfrac{31}{6}\right\}$

5) $\dfrac{v - 8}{v} = \dfrac{4v - 1}{v} - \dfrac{7v - 14}{2v}$

$\{28\}$

6) $\dfrac{1}{3x^2 - 20x + 12} = \dfrac{x - 7}{6x^2 - 40x + 24} + \dfrac{1}{6x^2 - 40x + 24}$

$\{8\}$

7) $\dfrac{1}{v} = \dfrac{7}{v^2 + 3v} - \dfrac{4}{v}$

$\left\{ -\dfrac{8}{5} \right\}$

8) $\dfrac{3}{k + 1} = \dfrac{1}{k^2 + 3k + 2} + \dfrac{1}{k + 1}$

$\left\{ -\dfrac{3}{2} \right\}$

9) $\dfrac{2}{7x - 6} + \dfrac{1}{7x^2 + 29x - 30} = \dfrac{4}{7x^2 + 29x - 30}$

$\left\{ -\dfrac{7}{2} \right\}$

10) $\dfrac{1}{2n} + 1 = \dfrac{4}{n}$

$\left\{ \dfrac{7}{2} \right\}$

Simplify each expression.

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

$\dfrac{16 - x^2}{3(x - 2)}$

12) $\dfrac{3}{r + 8} - \dfrac{4r}{r + 6}$

$\dfrac{-29r + 18 - 4r^2}{(r + 8)(r + 6)}$

13) $\dfrac{7p}{3} - \dfrac{2}{2p+1}$

$\dfrac{14p^2 + 7p - 6}{3(2p+1)}$

14) $\dfrac{5m}{4m} + \dfrac{8}{8m+8}$

$\dfrac{5m+9}{4(m+1)}$

15) $\dfrac{3}{7n-8} + \dfrac{7n}{n-5}$

$\dfrac{-53n - 15 + 49n^2}{(n-5)(7n-8)}$

16) $\dfrac{1}{x+5} \cdot \dfrac{3x^2 - 12x}{3x}$

$\dfrac{x-4}{x+5}$

17) $\dfrac{v-8}{v-5} \cdot \dfrac{5v^2 - 25v}{v-8}$

$5v$

18) $\dfrac{6}{2n^2 + 10n} \cdot \dfrac{n-7}{6}$

$\dfrac{n-7}{2n(n+5)}$

19) $\dfrac{1}{b^2 + 5b - 14} \cdot \dfrac{-b^2 + 3b - 2}{b+10}$

$\dfrac{-b+1}{(b+7)(b+10)}$

20) $\dfrac{x+2}{x^2 + 7x + 10} \cdot \dfrac{9}{2x}$

$\dfrac{9}{2x(x+5)}$

21) $\dfrac{10k - 15}{2k^2} \div \dfrac{10k - 15}{9k^2}$

$\dfrac{9}{2}$

22) $\dfrac{x + 3}{30x + 36} \div \dfrac{1}{15x + 18}$

$\dfrac{x + 3}{2}$

23) $\dfrac{1}{n + 8} \div \dfrac{56n^2}{8n^3 + 64n^2}$

$\dfrac{1}{7}$

24) $\dfrac{1}{2 - p} \div \dfrac{6p^2}{6p^3 - 12p^2}$

-1

25) $\dfrac{7}{8a^3 - 36a^2} \div \dfrac{1}{8a^3 - 36a^2}$

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Simplify each and state the excluded values.

26) $\dfrac{n^2 + 4n + 3}{n^2 + 11n + 10}$

$\dfrac{n + 3}{n + 10}$; $\{-10, -1\}$

27) $\dfrac{n^2 - 2n - 24}{n^2 - 13n + 42}$

$\dfrac{n + 4}{n - 7}$; $\{7, 6\}$

28) $\dfrac{5m}{m+3}$

$\dfrac{5m}{m+3}$; $\{-3\}$

29) $\dfrac{x^2 - 7x - 18}{4x - 40}$

$\dfrac{(x-9)(x+2)}{4(x-10)}$; $\{10\}$

30) $\dfrac{5r+10}{r^2 + 11r + 18}$

$\dfrac{5}{r+9}$; $\{-9, -2\}$