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Unit 10 Review

Date_____ Period____

Simplify each expression. State the excluded values.

1) $\frac{x^2 - 6x + 8}{x^2 - 11x + 28} \cdot \frac{x - 7}{x + 5}$

2) $\frac{7}{7k - 21} \cdot \frac{k^2 + 5k - 24}{5}$

3) $\frac{10}{27a + 54} \cdot \frac{15a^2 + 9a - 42}{5a - 7}$

4) $\frac{3p^2 + 7p - 40}{p + 7} \cdot \frac{1}{40p - 15p^2}$

5) $(5 - 7a) \cdot \frac{a - 5}{56a - 40}$

6) $\frac{10p + 20}{18p^3 + 36p^2} \cdot \frac{p - 2}{5}$

7) $\frac{24n}{n + 3} \div \frac{1}{n + 3}$

8) $\frac{6}{2x^3 - 10x^2} \div \frac{1}{2x^2}$

9) $\frac{9}{7r + 2} \div \frac{8}{56r + 16}$

10) $\frac{2m^2 + 3m - 20}{14m^2 - 41m + 15} \div \frac{m - 4}{7m - 3}$

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11) $\frac{x-3}{2} \div \frac{7x-5}{14x-10}$

12) $\frac{9}{7p^2+46p-21} \div \frac{1}{7p-3}$

Simplify each expression.

13) $\frac{4p}{2p-2} + \frac{6}{3p}$

14) $\frac{2}{3p} + \frac{2p}{2p+6}$

15) $\frac{2}{2k+10} + \frac{3k}{2}$

16) $\frac{4n-6}{n-3} + \frac{5n}{3n-1}$

17) $\frac{5}{r+4} + \frac{3}{2}$

18) $\frac{4}{6} + \frac{4n}{3n+5}$

19) $\frac{4b-1}{3b+18} - \frac{2}{2b}$

20) $\frac{b-6}{15b^2+9b} - \frac{3}{3b}$

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21) $\frac{5m}{4} - \frac{2m}{2m-4}$

22) $\frac{2}{r+2} - \frac{4}{2}$

23) $\frac{3}{3x(x+5)} - \frac{6}{3}$

24) $\frac{3}{x+4} - \frac{4x}{2x+1}$

Solve each equation. Remember to check for extraneous solutions.

25) $\frac{1}{3b} = \frac{5}{3b} - \frac{5}{b^2}$

26) $\frac{6}{b} = \frac{b+4}{2b} - \frac{4}{b}$

27) $1 + \frac{1}{k} = \frac{5}{k}$

28) $\frac{1}{p-3} = \frac{2}{p-2} + \frac{5}{p^2-5p+6}$

29) $1 + \frac{2}{x} = \frac{x^2-x-6}{x}$

30) $\frac{4x+2}{3} = \frac{x+6}{3} - \frac{1}{3x}$

31) $\frac{5}{6x+6} + \frac{x^2+x-30}{6x^2+6x} = \frac{1}{x}$

32) $\frac{2}{b} + 1 = \frac{b^2+b-2}{2b^2+b}$

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Find the inverse of each function.

33) $g(x) = \dfrac{-25 + 3x}{5}$

34) $h(x) = \dfrac{4}{x - 2} - 2$

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

36) $g(x) = \dfrac{4}{-x - 2} + 2$

37) $g(x) = -\dfrac{4}{3}x - \dfrac{4}{3}$

38) $g(x) = 5x + 5$

39) $f(x) = \sqrt[5]{x + 2} - 1$

40) $g(x) = \dfrac{2}{x + 2} - 1$

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Answers to Unit 10 Review (ID: 1)

1) $\frac{x-2}{x+5}$; $\{7, 4, -5\}$

2) $\frac{k+8}{5}$; $\{3\}$

3) $\frac{10}{9}$; $\left\{-2, \frac{7}{5}\right\}$

4) $\frac{-p-5}{5p(p+7)}$; $\left\{-7, 0, \frac{8}{3}\right\}$

5) $\frac{-a+5}{8}$; $\left\{\frac{5}{7}\right\}$

6) $\frac{p-2}{9p^2}$; $\{0, -2\}$

7) $24n$; $\{-3\}$

8) $\frac{6}{x-5}$; $\{0, 5\}$

9) 9; $\left\{-\frac{2}{7}\right\}$

10) $\frac{m+4}{m-4}$; $\left\{\frac{5}{2}, \frac{3}{7}, 4\right\}$

11) $x-3$; $\left\{\frac{5}{7}\right\}$

12) $\frac{9}{p+7}$; $\left\{\frac{3}{7}, -7\right\}$

13) $\frac{2p^2+2p-2}{p(p-1)}$

14) $\frac{2p+6+3p^2}{3p(p+3)}$

15) $\frac{2+3k^2+15k}{2(k+5)}$

16) $\frac{17n^2-37n+6}{(n-3)(3n-1)}$

17) $\frac{22+3r}{2(r+4)}$

18) $\frac{18n+10}{3(3n+5)}$

19) $\frac{4b^2-4b-18}{3b(b+6)}$

20) $\frac{-14b-15}{3b(5b+3)}$

21) $\frac{5m^2-14m}{4(m-2)}$

22) $\frac{-2r-2}{r+2}$

23) $\frac{-2x^2-10x+1}{x(x+5)}$

24) $\frac{-10x+3-4x^2}{(x+4)(2x+1)}$

25) $\left\{\frac{15}{4}\right\}$

26) $\{16\}$

27) $\{4\}$

28) $\{-1\}$

29) $\{4, -2\}$

30) $\left\{1, \frac{1}{3}\right\}$

31) $\{6, -6\}$

32) $\{-2\}$

33) $g^{-1}(x) = \frac{5x+25}{3}$

34) $h^{-1}(x) = \frac{4}{x+2} + 2$

35) $f^{-1}(x) = \frac{2}{x-3} - 2$

36) $g^{-1}(x) = -\frac{4}{x-2} - 2$

37) $g^{-1}(x) = -1 - \frac{3}{4}x$

38) $g^{-1}(x) = \frac{1}{5}x - 1$

39) $f^{-1}(x) = (x+1)^5 - 2$

40) $g^{-1}(x) = \frac{2}{x+1} - 2$

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