Kuta Software - Infinite Algebra 2 Name_____

Complex Fractions

Date_____ Period____

Simplify each expression.

1) $\dfrac{4}{\frac{3}{4}-\frac{3}{2}}$

2) $\dfrac{\frac{1}{4}+\frac{5}{4}}{4}$

3) $\dfrac{\frac{4}{5}}{\frac{2}{25}-\frac{5}{16}}$

4) $\dfrac{2}{\frac{3}{2}-\frac{4}{3}}$

5) $\dfrac{x}{\frac{3}{x}+\frac{1}{x}}$

6) $\dfrac{\frac{16}{m-1}}{\frac{16}{5}-\frac{16}{25}}$

7) $\dfrac{9}{\frac{9}{x}+\frac{2}{3x}}$

8) $\dfrac{a^2}{\frac{4}{5}-\frac{4}{a}}$

9) $\dfrac{\frac{x^2}{9}+\frac{1}{4}}{6x}$

10) $\dfrac{\frac{a}{8}-\frac{4}{a^2}}{4}$

11) $\dfrac{\frac{25}{12}+\frac{x+1}{4}}{\frac{1}{18}-\frac{x+1}{36}}$

12) $\dfrac{\frac{16}{m-3}-\frac{4}{m-4}}{\frac{16}{m^2}-\frac{m-4}{m-3}}$

13) $\dfrac{\frac{x-6}{6}-\frac{x-2}{x-6}}{\frac{36}{x-2}+\frac{4}{9}}$

14) $\dfrac{\frac{1}{2}-\frac{x+5}{4}}{\frac{x^2}{2}-\frac{5}{2}}$

Kuta Software - Infinite Algebra 2 Name_____

Complex Fractions

Date_____ Period____

Simplify each expression.

1) $\dfrac{4}{\frac{3}{4}-\frac{3}{2}}$

$-\frac{16}{3}$

2) $\dfrac{\frac{1}{4}+\frac{5}{4}}{4}$

$\frac{3}{8}$

3) $\dfrac{\frac{4}{5}}{\frac{2}{25}-\frac{5}{16}}$

$-\frac{320}{93}$

4) $\dfrac{2}{\frac{3}{2}-\frac{4}{3}}$

12

5) $\dfrac{x}{\frac{3}{x}+\frac{1}{x}}$

$\frac{x^2}{4}$

6) $\dfrac{\frac{16}{m-1}}{\frac{16}{5}-\frac{16}{25}}$

$\frac{25}{4m-4}$

7) $\dfrac{9}{\frac{9}{x}+\frac{2}{3x}}$

$\dfrac{27x}{29}$

8) $\dfrac{a^2}{\frac{4}{5}-\frac{4}{a}}$

$\dfrac{5a^3}{4a-20}$

9) $\dfrac{\frac{x^2}{9}+\frac{1}{4}}{6x}$

$\dfrac{4x^2+9}{216x}$

10) $\dfrac{\frac{a}{8}-\frac{4}{a^2}}{4}$

$\dfrac{a^3-32}{32a^2}$

11) $\dfrac{\frac{25}{12}+\frac{x+1}{4}}{\frac{1}{18}-\frac{x+1}{36}}$

$\dfrac{84+9x}{1-x}$

12) $\dfrac{\frac{16}{m-3}-\frac{4}{m-4}}{\frac{16}{m^2}-\frac{m-4}{m-3}}$

$\dfrac{12m^3-52m^2}{192-112m-m^4+8m^3}$

13) $\dfrac{\frac{x-6}{6}-\frac{x-2}{x-6}}{\frac{36}{x-2}+\frac{4}{9}}$

$\dfrac{3x^3-60x^2+252x-288}{584x+8x^2-3792}$

14) $\dfrac{\frac{1}{2}-\frac{x+5}{4}}{\frac{x^2}{2}-\frac{5}{2}}$

$\dfrac{-3-x}{2x^2-10}$

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Rational Expressions

Date_____ Period____

State the excluded values for each.

1) $\frac{60x^3}{12x}$

2) $\frac{70v^2}{100v}$

3) $\frac{m+7}{m^2+4m-21}$

4) $\frac{n^2+6n+5}{n+1}$

5) $\frac{35x-35}{25x-40}$

6) $\frac{-n^2+16n-63}{n^2-2n-35}$

Simplify each and state the excluded values.

7) $\frac{p+4}{p^2+6p+8}$

8) $\frac{9}{15a-15}$

9) $\frac{2a^2+10a}{3a^2+15a}$

10) $\frac{p^2-3p-10}{p^2+p-2}$

11) $\frac{x^2+x-6}{x^2+8x+15}$

12) $\frac{a^2+5a+4}{a^2+9a+20}$

13) $\frac{x^2-2x-15}{x^2-6x+5}$

14) $\frac{10x-6}{10x-6}$

15) $\frac{(v-7)(v+8)}{(v+8)(v-10)} \div \frac{1}{v-10}$

16) $\frac{n+3}{n+2} \div \frac{(n-1)(n+3)}{(n-1)^2}$

17) $\frac{x+3}{4} \cdot \frac{3(x-6)}{3(x+3)}$

18) $\frac{x-8}{(x+6)(x-8)} \cdot \frac{4x(x+10)}{x+10}$

19) $\frac{2b^2-12b}{b+5} \div \frac{b-6}{b+5}$

20) $\frac{1}{n+9} \div \frac{6-n}{3n-18}$

21) $\frac{28-7b}{b-4} \cdot \frac{1}{b+10}$

22) $\frac{2}{v^2-12v+27} \cdot \frac{v^2-12v+27}{3}$

23) $\frac{1}{5p^2} \div \frac{9p-36}{5p^3-35p^2}$

24) $\frac{8-7x-x^2}{x+8} \cdot \frac{x+5}{9x-9}$

25) $\frac{x^2-16}{9-x} \cdot \frac{x^2+x-90}{x^2+14x+40}$

26) $\frac{10x^2-20x}{40x^3-80x^2} \cdot \frac{16x^3+80x^2}{6x+30}$

Kuta Software - Infinite Algebra 2 Name_____

Rational Expressions

Date_____ Period____

State the excluded values for each.

1) $\frac{60x^3}{12x}$

$\{0\}$

2) $\frac{70v^2}{100v}$

$\{0\}$

3) $\frac{m+7}{m^2+4m-21}$

$\{-7, 3\}$

4) $\frac{n^2+6n+5}{n+1}$

$\{-1\}$

5) $\frac{35x-35}{25x-40}$

$\left\{\frac{8}{5}\right\}$

6) $\frac{-n^2+16n-63}{n^2-2n-35}$

$\{-5, 7\}$

Simplify each and state the excluded values.

7) $\frac{p+4}{p^2+6p+8}$

$\frac{1}{p+2}$; $\{-2, -4\}$

8) $\frac{9}{15a-15}$

$\frac{3}{5(a-1)}$; $\{1\}$

9) $\frac{2a^2+10a}{3a^2+15a}$

$\frac{2}{3}$; $\{0, -5\}$

10) $\frac{p^2-3p-10}{p^2+p-2}$

$\frac{p-5}{p-1}$; $\{-2, 1\}$

11) $\frac{x^2+x-6}{x^2+8x+15}$

$\frac{x-2}{x+5}$; $\{-3, -5\}$

12) $\frac{a^2+5a+4}{a^2+9a+20}$

$\frac{a+1}{a+5}$; $\{-4, -5\}$

13) $\frac{x^2 - 2x - 15}{x^2 - 6x + 5}$

$\frac{x+3}{x-1}$; $\{1, 5\}$

14) $\frac{10x - 6}{10x - 6}$

1; $\left\{\frac{3}{5}\right\}$

15) $\frac{(v-7)(v+8)}{(v+8)(v-10)} \div \frac{1}{v-10}$

$v - 7$; $\{-8, 10\}$

16) $\frac{n+3}{n+2} \div \frac{(n-1)(n+3)}{(n-1)^2}$

$\frac{n-1}{n+2}$; $\{-2, 1, -3\}$

17) $\frac{x+3}{4} \cdot \frac{3(x-6)}{3(x+3)}$

$\frac{x-6}{4}$; $\{-3\}$

18) $\frac{x-8}{(x+6)(x-8)} \cdot \frac{4x(x+10)}{x+10}$

$\frac{4x}{x+6}$; $\{-6, 8, -10\}$

19) $\frac{2b^2 - 12b}{b+5} \div \frac{b-6}{b+5}$

$2b$; $\{-5, 6\}$

20) $\frac{1}{n+9} \div \frac{6-n}{3n-18}$

$-\frac{3}{n+9}$; $\{-9, 6\}$

21) $\frac{28 - 7b}{b-4} \cdot \frac{1}{b+10}$

$-\frac{7}{b+10}$; $\{4, -10\}$

22) $\frac{2}{v^2 - 12v + 27} \cdot \frac{v^2 - 12v + 27}{3}$

$\frac{2}{3}$; $\{3, 9\}$

23) $\frac{1}{5p^2} \div \frac{9p - 36}{5p^3 - 35p^2}$

$\frac{p-7}{9(p-4)}$; $\{0, 7, 4\}$

24) $\frac{8 - 7x - x^2}{x+8} \cdot \frac{x+5}{9x-9}$

$-\frac{(x+5)}{9}$; $\{-8, 1\}$

25) $\frac{x^2 - 16}{9 - x} \cdot \frac{x^2 + x - 90}{x^2 + 14x + 40}$

$-(x-4)$; $\{9, -4, -10\}$

26) $\frac{10x^2 - 20x}{40x^3 - 80x^2} \cdot \frac{16x^3 + 80x^2}{6x + 30}$

$\frac{2x}{3}$; $\{0, 2, -5\}$

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Solving Rational Equations

Date_____ Period____

Solve each equation. Remember to check for extraneous solutions.

1) $\frac{1}{6k^2} = \frac{1}{3k^2} - \frac{1}{k}$

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

3) $\frac{1}{6b^2} + \frac{1}{6b} = \frac{1}{b^2}$

4) $\frac{b+6}{4b^2} + \frac{3}{2b^2} = \frac{b+4}{2b^2}$

5) $\frac{1}{x} = \frac{6}{5x} + 1$

6) $\frac{1}{6x^2} = \frac{1}{2x} + \frac{7}{6x^2}$

7) $\frac{1}{v} + \frac{3v+12}{v^2-5v} = \frac{7v-56}{v^2-5v}$

8) $\frac{1}{m^2-m} + \frac{1}{m} = \frac{5}{m^2-m}$

9) $\frac{1}{n-8} - 1 = \frac{7}{n-8}$

10) $\frac{1}{r-2} + \frac{1}{r^2-7r+10} = \frac{6}{r-2}$

11) $1 = \frac{v+2}{v-4} + \frac{7v-42}{v-4}$

12) $\frac{r-4}{5r} = \frac{1}{5r} + 1$

13) $1 + \frac{x^2-5x-24}{3x} = \frac{x-6}{3x}$

14) $1 = \frac{1}{x^2+2x} + \frac{x-1}{x}$

15) $\frac{n+5}{n+8} = 1 + \frac{6}{n+1}$

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

17) $\frac{1}{x^2-5x} = \frac{x+7}{x} - 1$

18) $\frac{a-2}{a+3} - 1 = \frac{3}{a+2}$

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

20) $\frac{5}{n^3+5n^2} = \frac{4}{n+5} + \frac{1}{n^2}$

Kuta Software - Infinite Algebra 2 Name_____

Solving Rational Equations

Date_____ Period____

Solve each equation. Remember to check for extraneous solutions.

1) $\frac{1}{6k^2} = \frac{1}{3k^2} - \frac{1}{k}$

$\left\{\frac{1}{6}\right\}$

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

$\left\{-\frac{1}{2}\right\}$

3) $\frac{1}{6b^2} + \frac{1}{6b} = \frac{1}{b^2}$

$\{5\}$

4) $\frac{b+6}{4b^2} + \frac{3}{2b^2} = \frac{b+4}{2b^2}$

$\{4\}$

5) $\frac{1}{x} = \frac{6}{5x} + 1$

$\left\{-\frac{1}{5}\right\}$

6) $\frac{1}{6x^2} = \frac{1}{2x} + \frac{7}{6x^2}$

$\{-2\}$

7) $\frac{1}{v} + \frac{3v+12}{v^2-5v} = \frac{7v-56}{v^2-5v}$

$\{21\}$

8) $\frac{1}{m^2-m} + \frac{1}{m} = \frac{5}{m^2-m}$

$\{5\}$

9) $\frac{1}{n-8} - 1 = \frac{7}{n-8}$

$\{2\}$

10) $\frac{1}{r-2} + \frac{1}{r^2-7r+10} = \frac{6}{r-2}$

$\left\{\frac{26}{5}\right\}$

11) $1 = \frac{v+2}{v-4} + \frac{7v-42}{v-4}$

$\left\{\frac{36}{7}\right\}$

12) $\frac{r-4}{5r} = \frac{1}{5r} + 1$

$\left\{-\frac{5}{4}\right\}$

13) $1 + \frac{x^2-5x-24}{3x} = \frac{x-6}{3x}$

$\{-3, 6\}$

14) $1 = \frac{1}{x^2+2x} + \frac{x-1}{x}$

$\{-1\}$

15) $\frac{n+5}{n+8} = 1 + \frac{6}{n+1}$

$\left\{-\frac{17}{3}\right\}$

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

$\{4, -1\}$

17) $\frac{1}{x^2-5x} = \frac{x+7}{x} - 1$

$\left\{\frac{36}{7}\right\}$

18) $\frac{a-2}{a+3} - 1 = \frac{3}{a+2}$

$\left\{-\frac{19}{8}\right\}$

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

$\{4, 1\}$

20) $\frac{5}{n^3+5n^2} = \frac{4}{n+5} + \frac{1}{n^2}$

$\left\{-\frac{1}{4}\right\}$

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