

4.6 - Review Rationals WS

Date _____

Simplify each and state the excluded values.

1) $\frac{35x - 14}{5x - 2} \div \frac{2x^2 + 6x + 4}{10x + 20}$

2) $\frac{2a + 4}{12a^2 + 24a} \cdot \frac{6a^2 - 30a}{6a + 18}$

3) $\frac{5v^2}{27v} \div \frac{35v^3 - 10v^2}{7v^2 + 47v - 14}$

4) $\frac{16n^2 - 24n}{14n^2 - 7n - 21} \cdot \frac{21n^3 + 21n^2}{3n^3 - 24n^2}$

Simplify each expression.

5) $\frac{3}{a - 1} - \frac{6a}{a - 6}$

6) $\frac{5}{6m - 6} + \frac{4}{6m^2 - 6m}$

7) $\frac{4n}{n + 3} + \frac{4}{n - 3}$

8) $\frac{4p}{2p - 2} + \frac{4}{p + 2}$

9) $\frac{5}{v - 4} - \frac{5v}{v + 2}$

10) $\frac{4n}{n - 4} + \frac{4}{2n + 5}$

$$11) \frac{\frac{x}{36}}{\frac{1}{5} + \frac{x}{25}}$$

$$12) \frac{\frac{25}{3}}{\frac{3}{a^2} + \frac{1}{5}}$$

$$13) \frac{\frac{16}{x}}{\frac{1}{9} + \frac{1}{9}}$$

$$14) \frac{\frac{x}{9} + \frac{x+4}{9}}{3x}$$

Solve each equation. Remember to check for extraneous solutions.

$$15) \frac{a+1}{a^2} + \frac{1}{6a^2} = \frac{a+4}{6a^2}$$

$$16) \frac{1}{n^2} = \frac{3}{n^2} - \frac{2}{n}$$

$$17) \frac{1}{b^2 - 2b} = \frac{6}{b^2 - 2b} + \frac{1}{b - 2}$$

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

$$19) \frac{3x^2 - 6x + 3}{2x^2 - 6x} + \frac{1}{2x} = \frac{1}{2x - 6}$$

$$20) \frac{4}{n+2} - \frac{n^2 + 4n - 12}{n+2} = 1$$

Answers to 4.6 - Review Rationals WS

$$1) \frac{35}{x+1}; \left\{ \frac{2}{5}, -2, -1 \right\}$$

$$5) \frac{9a - 18 - 6a^2}{(a-6)(a-1)}$$

$$9) \frac{25v + 10 - 5v^2}{(v-4)(v+2)}$$

$$13) \frac{72}{x}$$

$$17) \{-5\}$$

$$2) \frac{a-5}{6(a+3)}; \{0, -2, -3\}$$

$$6) \frac{5m+4}{6m(m-1)}$$

$$10) \frac{8n^2 + 24n - 16}{(n-4)(2n+5)}$$

$$14) \frac{2x+4}{27x}$$

$$18) \left\{ -\frac{2}{3}, 1 \right\}$$

$$3) \frac{v+7}{27v}; \left\{ 0, \frac{2}{7}, -7 \right\}$$

$$7) \frac{4n^2 - 8n + 12}{(n-3)(n+3)}$$

$$11) \frac{25x}{180 + 36x}$$

$$15) \left\{ -\frac{3}{5} \right\}$$

$$19) \{2\}$$

$$4) \frac{8n}{n-8}; \left\{ \frac{3}{2}, -1, 0, 8 \right\}$$

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

$$12) \frac{125a^2}{45 + 3a^2}$$

$$16) \{1\}$$

$$20) \{2, -7\}$$