

Rational Expression Operations

Date _____ Period _____

Simplify each expression.

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

2) $\frac{4}{n-1} \cdot \frac{n^2 + 10n + 24}{4n + 24}$

3) $\frac{3k}{3} - \frac{5}{5k-3}$

4) $\frac{5x}{x+9} \div \frac{x-10}{4x-40}$

5) $\frac{5x^2 + 6x - 8}{6} \cdot \frac{1}{5x-4}$

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

7) $\frac{5}{5m+3} + \frac{5}{m+4}$

8) $\frac{1}{7x+5} \cdot \frac{28x^3 + 20x^2}{x-6}$

9) $\frac{5}{3} + \frac{p-5}{3(p+2)}$

10) $(m^2 + m - 20) \div \frac{m^2 - 12m + 35}{m-7}$

11) $\frac{7k}{k-1} - \frac{7}{3k-3}$

12) $\frac{8k+12}{5k+1} \div \frac{6k+9}{5k^2 - 14k - 3}$

Simplify each and state the excluded values.

13) $\frac{n+2}{5n^2 + 10n}$

14) $\frac{2p^2 + 2p}{p+1}$

15) $\frac{5x^3 + 15x^2}{3x^2 + 36x + 81}$

16) $\frac{6v^3 - 30v^2 + 24v}{v^3 + 4v^2 - 32v}$

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Simplify each expression.

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

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

$$2) \frac{4}{n-1} \cdot \frac{n^2 + 10n + 24}{4n + 24} \cdot \frac{n+4}{n-1}$$

$$3) \frac{3k}{3} - \frac{5}{5k-3}$$

$$\frac{5k^2 - 3k - 5}{5k - 3}$$

$$4) \frac{5x}{x+9} \div \frac{x-10}{4x-40} \cdot \frac{20x}{x+9}$$

$$5) \frac{5x^2 + 6x - 8}{6} \cdot \frac{1}{5x-4} \cdot \frac{x+2}{6}$$

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

$$-\frac{3}{4x+4}$$

$$7) \frac{5}{5m+3} + \frac{5}{m+4}$$

$$\frac{30m+35}{(m+4)(5m+3)}$$

$$8) \frac{1}{7x+5} \cdot \frac{28x^3 + 20x^2}{x-6} \cdot \frac{4x^2}{x-6}$$

$$9) \frac{5}{3} + \frac{p-5}{3(p+2)}$$

$$\frac{6p+5}{3(p+2)}$$

$$10) (m^2 + m - 20) \div \frac{m^2 - 12m + 35}{m-7} \cdot \frac{(m-4)(m+5)}{m-5}$$

$$11) \frac{7k}{k-1} - \frac{7}{3k-3}$$

$$\frac{21k-7}{3(k-1)}$$

$$12) \frac{8k+12}{5k+1} \div \frac{6k+9}{5k^2-14k-3} \cdot \frac{4(k-3)}{3}$$

Simplify each and state the excluded values.

$$13) \frac{n+2}{5n^2+10n}$$

$$\frac{1}{5n}; \{0, -2\}$$

$$14) \frac{2p^2+2p}{p+1}$$

$$2p; \{-1\}$$

$$15) \frac{5x^3+15x^2}{3x^2+36x+81}$$

$$\frac{5x^2}{3(x+9)}; \{-9, -3\}$$

$$16) \frac{6v^3-30v^2+24v}{v^3+4v^2-32v}$$

$$\frac{6(v-1)}{v+8}; \{0, 4, -8\}$$