

Operations on Rational Expressions

Date _____ Period _____

Class Examples: Simplify each and state the excluded values.

1) $\frac{10}{35}$

2) $\frac{x + 10}{x^2 + x - 90}$

Simplify each and state the excluded values.

3) $\frac{n + 3}{n^2 - 2n - 15}$

4) $\frac{-m^2 + 15m - 50}{m^2 - 6m - 40}$

Class Examples: Simplify each and state the excluded values.

5) $\frac{4}{21} \cdot \frac{7}{8}$

6) $\frac{3n - 7}{n - 8} \cdot \frac{8n + 12}{6n^2 - 5n - 21}$

Simplify each and state the excluded values.

7) $(x + 1) \cdot \frac{7x^2 - 18x + 8}{7x^2 + 66x - 40}$

8) $\frac{28v + 36}{3v^2 - 18v} \cdot \frac{v - 6}{63v^2 + 81v}$

Class Examples: Simplify each expression.

9) $\frac{2}{5} \div \frac{4}{3}$

10) $\frac{n - 3}{50n - 70} \div \frac{3 - n}{25n - 35}$

Simplify each expression.

$$11) \frac{\frac{8n}{3n+3}}{\frac{2n-18}{6n+6}}$$

$$12) \frac{35x^2 + 63x + 28}{35x + 28} \div \frac{7x + 7}{x + 8}$$

Class Examples: Simplify each expression.

$$13) \frac{4}{7} - \frac{5}{3}$$

$$14) \frac{x+1}{3x+15} + \frac{3}{2}$$

Simplify each expression.

$$15) \frac{x-6}{5x-10} - 5$$

$$16) \frac{2}{9n-18} - \frac{3n}{2}$$

Class Example: Simplify each expression.

$$17) \frac{4}{2 + \frac{1}{x}}$$

$$18) \frac{\frac{1}{x} + \frac{x}{y}}{\frac{1}{y} + 1}$$

19) Page 531 # 11-13; 18, 19, 32, 22; and Page 539 #16-21, 26, 27

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Class Examples: Simplify each and state the excluded values.

1) $\frac{10}{35}$

$\frac{2}{7}$

2) $\frac{x+10}{x^2+x-90}$

$\frac{1}{x-9}; \{9, -10\}$

Simplify each and state the excluded values.

3) $\frac{n+3}{n^2-2n-15}$

$\frac{1}{n-5}; \{5, -3\}$

4) $\frac{-m^2+15m-50}{m^2-6m-40}$

$\frac{-m+5}{m+4}; \{10, -4\}$

Class Examples: Simplify each and state the excluded values.

5) $\frac{4}{21} \cdot \frac{7}{8}$

$\frac{1}{6}$

6) $\frac{3n-7}{n-8} \cdot \frac{8n+12}{6n^2-5n-21}$

$\frac{4}{n-8}; \left\{8, \frac{7}{3}, -\frac{3}{2}\right\}$

Simplify each and state the excluded values.

7) $(x+1) \cdot \frac{7x^2-18x+8}{7x^2+66x-40}$

$\frac{(x-2)(x+1)}{x+10}; \left\{\frac{4}{7}, -10\right\}$

8) $\frac{28v+36}{3v^2-18v} \cdot \frac{v-6}{63v^2+81v}$

$\frac{4}{27v^2}; \left\{0, 6, -\frac{9}{7}\right\}$

Class Examples: Simplify each expression.

9) $\frac{2}{5} \div \frac{4}{3}$

$\frac{3}{10}$

10) $\frac{n-3}{50n-70} \div \frac{3-n}{25n-35}$

$-\frac{1}{2}; \left\{\frac{7}{5}, 3\right\}$

Simplify each expression.

$$11) \frac{\frac{8n}{3n+3}}{\frac{2n-18}{6n+6}}$$
$$\frac{8n}{n-9}; \{-1, 9\}$$

$$12) \frac{35x^2 + 63x + 28}{35x + 28} \div \frac{7x + 7}{x + 8}$$
$$\frac{x+8}{7}; \left\{-\frac{4}{5}, -8, -1\right\}$$

Class Examples: Simplify each expression.

$$13) \frac{4}{7} - \frac{5}{3}$$

$$14) \frac{x+1}{3x+15} + \frac{3}{2}$$
$$\frac{11x+47}{6(x+5)}$$

Simplify each expression.

$$15) \frac{x-6}{5x-10} - 5$$
$$\frac{-24x+44}{5(x-2)}$$

$$16) \frac{2}{9n-18} - \frac{3n}{2}$$
$$\frac{4-27n^2+54n}{18(n-2)}$$

Class Example: Simplify each expression.

$$17) \frac{4}{2 + \frac{1}{x}}$$

$$18) \frac{\frac{1}{x} + \frac{x}{y}}{\frac{1}{y} + 1}$$
$$\{-8, 9, -7\}$$

19) Page 531 # 11-13; 18, 19, 32, 22; and Page 539 #16-21, 26, 27