

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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