

Rational Expressions

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

Rational Expressions

State the excluded values for each.

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

$$\frac{12x = 0}{12 \quad 12}$$

$$x = 0$$

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

$$m^2 + 4m - 21 = 0$$

$$(m-3)(m+7) = 0$$

$$m = 3, m = -7$$

$$\begin{array}{r} -21 \\ -3 \times 7 \\ \hline 4 \end{array}$$

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

$$25x - 40 = 0$$

$$\frac{+40 \quad +40}{25x = 40}$$

$$\frac{25x}{25} = \frac{40}{25}$$

$$x = \frac{40}{25} = \frac{8}{5}$$

$$x = 8/5$$

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

$$\frac{100v = 0}{100 \quad 100}$$

$$v = 0$$

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

$$n+1 = 0$$

$$n = -1$$

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

$$n^2 - 2n - 35 = 0$$

$$(n-7)(n+5) = 0$$

$$n = 7, -5$$

$$\begin{array}{r} -35 \\ -7 \times 5 \\ \hline -2 \end{array}$$

Simplify each and state the excluded values.

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

$$p^2 + 6p + 8 = 0$$

$$(p+2)(p+4) = 0$$

$$p = -2, p = -4$$

$$\begin{array}{r} 8 \\ 2 \times 4 \\ \hline 6 \end{array}$$

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

$$15a - 15 = 0$$

$$\frac{+15 \quad +15}{15a = 15}$$

$$\frac{15a}{15} = \frac{15}{15}$$

$$a = 1$$

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

$$3a^2 + 15a = 0$$

$$a(3a+15) = 0$$

$$a = 0, a = -5$$

$$3a + 15 = 0$$

$$\frac{-15 \quad -15}{3a = -15}$$

$$\frac{3a}{3} = \frac{-15}{3}$$

$$a = -5$$

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

$$p^2 - 3p - 10 = 0$$

$$(p-5)(p+2) = 0$$

$$p = 5, p = -2$$

$$\begin{array}{r} -20 \\ -1 \times 20 \\ \hline 1 \end{array}$$

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

$$x^2 + 8x + 15 = 0$$

$$(x+3)(x+5) = 0$$

$$x = -3, x = -5$$

$$\begin{array}{r} 15 \\ 3 \times 5 \\ \hline 8 \end{array}$$

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

$$a^2 + 9a + 20 = 0$$

$$(a+4)(a+5) = 0$$

$$a = -4, a = -5$$

$$\begin{array}{r} 20 \\ 4 \times 5 \\ \hline 9 \end{array}$$