Lesson 1.3.4: Rational Algebraic Expressions

Rational Algebraic Expression: a ratio of two polynomials provided that the denominator is not equal to zero In short, $\frac{P}{Q}$, where P and Q are polynomials and $Q \neq 0$.

Practice Exercises 1.3.4

A. Find the values for the variable for which each rational expression is undefined.

1.
$$\frac{5}{2y}$$

2.
$$\frac{5a}{3a-2}$$

2.
$$\frac{3a-2}{2b+6}$$

3. $\frac{2b+6}{b^2-2b+1}$

4.
$$\frac{r+s}{r^2+3r-10}$$
3 m

 $x^2 + 1$

7n + 6

3.
$$\frac{2b+6}{b^2-2b+1}$$

B. Give the domain of each rational expression.

1.
$$\frac{5}{3x}$$

2.
$$\frac{a}{5-a}$$

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

A. Find the values for the variable for which each rational expression is undefined.

1.
$$\frac{x}{2x+1}$$

2.
$$\frac{5x+1}{4x^2-1}$$

3.
$$\frac{m}{(m-3)^2}$$

4.
$$\frac{a+b}{25a^2-1}$$

a+b

3.
$$\frac{m}{(m-3)^2}$$

B. Give the domain of each rational expression.

1.
$$\frac{x+1}{x^2}$$

$$\frac{2}{2x-1}$$

3.
$$\frac{m}{m^2-25}$$

4.
$$\frac{x^2+4}{x^2-4}$$

$$5. \ \frac{2x^2-1}{4x^2+4x+}$$

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$$\frac{5a}{3a-2}$$

2.
$$\frac{3a-2}{3a-2}$$
3. $\frac{2b+6}{b^2-2b-1}$

4.
$$\frac{r+s}{r^2+3r-10}$$

5.
$$\frac{311}{m^2-2m-15}$$

$$\frac{b^2-2b+1}{b^2-2b+1}$$

B. Give the domain of each rational expression.

1.
$$\frac{3}{3x}$$
2. $\frac{a}{5}$

2.
$$\frac{3x}{5-a}$$

3.
$$\frac{5-a}{3x+4}$$

4.
$$\frac{1}{x^2+1}$$
5. $\frac{7n+6}{4n^2-1}$

Activity 1.3.4

A. Find the values for the variable for which each rational expression is undefined.

1.
$$\frac{x}{2x+1}$$
2. $\frac{5x+1}{4x^2-1}$

4.
$$\frac{a+b}{25a^2-1}$$

3.
$$\frac{4x^2-1}{(m-3)^2}$$

$$5. \ \frac{n+2}{4n^2-4n+1}$$

B. Give the domain of each rational expression.

1.
$$\frac{x+1}{x^2}$$

2.
$$\frac{7x}{2x-1}$$

3.
$$\frac{2x-1}{m^2-25}$$

$$5. \ \frac{2x^2 - 1}{4x^2 + 4x + 1}$$

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Practice Exercises 1.3.4

A. Find the values for the variable for which each rational expression is undefined.

1.
$$\frac{5}{2y}$$

4.
$$\frac{r+s}{r^2+3r-10}$$

2.
$$\frac{5a}{3a-2}$$
2. $\frac{5a}{2b+6}$

$$5. \ \frac{3m}{m^2 - 2m - 15}$$

3.
$$\frac{2b+6}{b^2-2b+1}$$

B. Give the domain of each rational expression.

1.
$$\frac{5}{3x}$$
2. $\frac{a}{3x}$

4.
$$\frac{2x+1}{x^2+1}$$

2.
$$\frac{3}{5-a}$$
3. $\frac{3}{3x+4}$

5.
$$\frac{7n+6}{4n^2-1}$$

Activity 1.3.4

A. Find the values for the variable for which each rational expression is undefined.

1.
$$\frac{x}{2x+1}$$
 $5x+1$

2.
$$\frac{5x+1}{4x^2-1}$$

4.
$$\frac{a+b}{25a^2-1}$$

3.
$$\frac{7}{(m-3)^2}$$

B. Give the domain of each rational expression.

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B. Give the domain of each rational expression.

1.
$$\frac{5}{3x}$$
2. $\frac{a}{5-a}$

4.
$$\frac{2x+1}{x^2+1}$$

5. $\frac{7n+6}{4n^2-1}$

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

Activity 1.3.4

A. Find the values for the variable for which each rational expression is undefined.

1.
$$\frac{x}{2x+1}$$

2. $\frac{5x+1}{4x^2-1}$

4.
$$\frac{a+b}{25a^2-1}$$

2.
$$\frac{4x^2-1}{m}$$

3. $\frac{m}{(m-3)^2}$

5.
$$\frac{n+2}{4n^2-4n+1}$$

3.
$$\frac{m}{(m-3)^2}$$

B. Give the domain of each rational expression.

$$1. \ \frac{x+1}{x^2}$$

$$\frac{2}{3}$$
 $\frac{2x-1}{m}$

$$5. \ \frac{2x^2 - 1}{4x^2 + 4x + 1}$$