# Practice Exercises on Rational Algebraic Expressions

## A. True or False

Write True if the expression is a rational algebraic expression or False if it is not. One point each.

1. $\dfrac{4x}{x+10}$
2. $\dfrac{3\sqrt{x}+1}{9}$
3. $\dfrac{x^2-4}{x^{\frac{2}{3}}}$
4. $\dfrac{x-1}{\sqrt{5x}+4}$
5. $\dfrac{3}{a-4}$

## B. Finding Domains

Find the domain of each rational algebraic expression. Write the final answers only. One point each.

1. $\dfrac{5x}{3x-2}$
2. $\dfrac{7}{3y-6}$
3. $\dfrac{4+a}{a^2+2a}$
4. $\dfrac{2y^2+13y+15}{y+1}$
5. $\dfrac{y+1}{y-3}$
6. $\dfrac{9}{x^2+x-12}$
7. $\dfrac{2+4c}{c+5}$
8. $\dfrac{7}{x^2+5x+6}$
9. $\dfrac{3x-1}{9}$
10. $2x^3+3x^2+x+1$

## C. Becoming Meaningless

Find the value or values for which each rational algebraic expression becomes undefined. Write the final answers only. One point each.

1. $\dfrac{3x^2-2x+1}{5x}$
2. $\dfrac{x^2+1}{x^2+5x+6}$
3. $\dfrac{x^2+x+1}{5x+10}$
4. $\dfrac{x+5}{2x}$
5. $\dfrac{x^2-1}{x^2+x-12}$
6. $\dfrac{k-1}{k+1}$
7. $\dfrac{a^2}{2a+8}$
8. $\dfrac{10+v}{w^2+4w}$
9. $\dfrac{3m}{2m-1}$
10. $\dfrac{x-1}{x^2-4}$

# Answer Key

## A. True or False

1. True
2. False
3. False
4. False
5. True

## B. Finding Domains

1. Set of all real numbers except $\frac{2}{3}$
2. Set of all real numbers except 2
3. Set of all real numbers except $-2$
4. Set of all real numbers except $-1$
5. Set of all real numbers except $3$
6. Set of all real numbers except $-4$ and $3$
7. Set of all real numbers except $-5$
8. Set of all real numbers except $-2$ and $-3$
9. Set of all real numbers
10. Set of all real numbers

## C. Becoming Meaningless

1. $0$
2. $-2$ and $-3$
3. $-2$
4. $0$
5. $-4$ and $3$
6. $-1$
7. $-4$
8. $-4$
9. $\frac{1}{2}$
10. $2$ and $-2$