# Worksheet 1.3.1: 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. $\dfrac{4x}{x+8}$
2. $\dfrac{3\sqrt{x}+1}{19}$
3. $\dfrac{x^2-4}{x^{\frac{1}{3}}}$
4. $\dfrac{x-1}{\sqrt{2x}+3}$
5. $\dfrac{3}{a-3}$

## B. Finding Domains

Find the domain of each rational algebraic expression. Choose the answer from the box. Answers may be repeated. Write the letter only. One point each.

| | |
|---|---|
| a. Set of all real numbers | e. Set of all real numbers except $3$ |
| b. Set of all real numbers except $2$ | f. Set of all real numbers except $2$ and $3$ |
| c. Set of all real numbers except $-3$ and $-4$ | g. Set of all real numbers except $-2$ |
| d. Set of all real numbers except $-3$ | h. Set of all real numbers except $0$ |

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

## C. Becoming Meaningless

Find the value or values for which each rational algebraic expression becomes undefined. Choose the answer from the box. Answers may be repeated. Write the letter only. One point each.

| | |
|---|---|
| a. $2$ | e. $2$ and $-3$ |
| b. $-3$ and $4$ | f. $-2$ |
| c. $-3$ | g. $0$ |
| d. $3$ | h. $1$ |

16. $\dfrac{3x^2-2x+1}{3x}$
17. $\dfrac{x^2+1}{x^2+x-6}$
18. $\dfrac{x^2+x+1}{4x+12}$
19. $\dfrac{x+5}{2x-4}$
20. $\dfrac{x^2-1}{x^2-x-12}$
21. $\dfrac{k-1}{k+3}$

22. $\dfrac{a^2}{3a+6}$

23. $\dfrac{10+v}{w^2+2w}$

24. $\dfrac{3m}{4m-8}$

25. $\dfrac{x-1}{x^2-x}$