



Restriction on the Variable in a Denominator

• Example 1

In the following algebraic fractions, what values for x must be excluded for the expression to make sense?

(a) $\frac{x}{5}$. Here x can have any value, so none need to be excluded.

(b) $\frac{3}{x}$. If $x = 0$, then $\frac{3}{x}$ is undefined; 0 is the only excluded value.

(c) $\frac{5}{x-2}$. If $x = 2$, then $\frac{5}{x-2} = \frac{5}{2-2} = \frac{5}{0}$, which is undefined; 2 is the only excluded value.

• • • CHECK YOURSELF 1

What values for x , if any, must be excluded?

a. $\frac{x}{7}$

b. $\frac{5}{x}$

c. $\frac{7}{x-5}$

• • • CHECK YOURSELF ANSWER

1. (a) None; (b) 0; (c) 5.

5.1 Exercises

Name _____

Section _____

Date _____

A N S W E R S

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

What values for x , if any, must be excluded in each of the following algebraic fractions for the expression to make sense?

1. $\frac{x}{15}$

2. $\frac{8}{x}$

3. $\frac{17}{x}$

4. $\frac{x}{8}$

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

6. $\frac{x-1}{5}$

7. $\frac{-5}{x+4}$

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

9. $\frac{x-5}{2}$

10. $\frac{x-1}{x-5}$

11. $\frac{x}{5}$

12. $\frac{3}{x-4}$