

## Rational Expressions

### Learning Targets

I can:

- determine the non-permissible values for a rational expression *and explain why* (AN4.1)
- simplify a rational expression (AN4.2)

### Non-Permissible Values

Non-permissible values are the value(s) of a variable that make the denominator of a rational expression equal to 0.

### Strategy for determining non-permissible values

1. Factor the denominator if possible.
2. Set the denominator equal to zero.
3. Solve the equation for the variable.
4. State the non-permissible value(s).

### Sample Problems

State all non-permissible values.

a)  $\frac{2}{x}$

b)  $\frac{x-5}{x^2y}$

c)  $\frac{x+2}{x-3}$

d)  $\frac{7x}{x(x+1)}$

$$\text{e) } \frac{9}{x^2-16}$$

$$\text{f) } \frac{x+3}{x^2+7x+6}$$

$$\text{g) } \frac{x+4}{x(x^2-3x-40)}$$

$$\text{h) } \frac{1-x}{x^3-7x^2}$$

$$\text{i) } \frac{1-x^2}{3x^2+8x+4}$$