# Rational expressions: meaning, domain and cancellation

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Name: _____ Class: _____ Date: _____

**Worked example** 1

Simplify and retain every restriction from the original expression.

$$\frac{x^2 - 9}{x - 3}$$

**Guided attempt** 2

Simplify and retain every restriction from the original expression.

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

1. Original restriction: x≠___.
2. Factor the numerator as 2x(___); cancel the factor ___, not added terms.

**Prerequisite** 3

Which displayed expression has a variable in its denominator?

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

A. $x^2$
B. x+1
C. 1/(x+2)
D. x/3

**Prerequisite** 4

Evaluate 1/(x−2) at x=3. Check the denominator first.

$$1/(3 - 2)$$

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**Independent practice** 5

State the domain restriction. Does the fraction simplify by cancellation?

$$\frac{x+1}{x-4}$$

**Independent practice** 6

For which x is (x−5)/(x+1) equal to zero? Check that the expression is defined.

$$\frac{x-5}{x+1}=0$$

**Independent practice** 7

Simplify and retain every restriction from the original expression.

$$\frac{x^2-16}{x+4}$$

**Independent practice** 8

Simplify and retain every restriction from the original expression.

$$\frac{x^2+3x}{x}$$

**Exit question** 9

Simplify (x−2)/(x−2). Does the simplified value permit x=2? State the original restriction.

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

**Exit question** 10

Simplify and retain every restriction from the original expression.

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