

Questions: Introduction to algebraic fractions

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Summary

A selection of questions for the study guide on the introduction to algebraic fractions.

Before attempting these questions, it is highly recommended that you read [Guide: Introduction to algebraic fractions](#). You may also find reading [Guide: Factorization](#) useful.

Q1

For each algebraic fraction, state the restriction(s) on the denominator.

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

1.2. $\frac{5}{x-4}$

1.3. $-\frac{2}{2x+1}$

1.4. $\frac{y+3}{y+5}$

1.5. $\frac{4x}{x(3x-2)}$

1.6. $\frac{t-1}{(t+2)(t-3)}$

1.7. $\frac{5x+1}{x^2-16}$

1.8. $\frac{2}{(x-1)^2}$

1.9. $\frac{b}{b^2+4b}$

1.10. $\frac{7}{(x+3)(2x-5)}$

1.11. $-\frac{x-4}{x^2-5x+6}$

1.12. $\frac{z+3}{z^2+2z-8}$

Q2

In each of the following, find the missing value ? that makes the two algebraic fractions equivalent.

$$2.1. \quad \frac{x}{3} = \frac{?}{9}$$

$$2.2. \quad \frac{2}{t} = \frac{10}{?}$$

$$2.3. \quad \frac{a+1}{4} = \frac{?}{12}$$

$$2.4. \quad \frac{3x}{5} = \frac{?}{20}$$

$$2.5. \quad \frac{5}{x+2} = \frac{?}{2(x+2)}$$

$$2.6. \quad \frac{t-3}{t} = \frac{?}{2t}$$

$$2.7. \quad \frac{4}{y-1} = \frac{12}{?}$$

$$2.8. \quad \frac{x}{x-4} = \frac{?}{3(x-4)}$$

$$2.9. \quad \frac{x+5}{2x} = \frac{3(x+5)}{?}$$

$$2.10. \quad \frac{2z-1}{z+3} = \frac{?}{3(z+3)}$$

$$2.11. \quad \frac{3}{x} = \frac{3(x+1)}{?}$$

$$2.12. \quad \frac{r}{r-2} = \frac{r(r+3)}{?}$$

$$2.13. \quad \frac{4x}{x+1} = \frac{?}{(x+1)^2}$$

$$2.14. \quad \frac{2x+1}{x-5} = \frac{6x+3}{?}$$

$$2.15. \quad \frac{5-z}{z+2} = \frac{?}{-2(z+2)}$$

Q3

Simplify each algebraic fraction.

$$3.1. \quad \frac{8y}{12y}$$

- 3.2. $\frac{5x^2}{15x}$
- 3.3. $\frac{n^2 + 4n}{n}$
- 3.4. $\frac{3x^2 - 9x}{6x}$
- 3.5. $-\frac{4x}{10x}$
- 3.6. $\frac{m^2 - 16}{m - 4}$
- 3.7. $\frac{x^2 - 1}{x + 1}$
- 3.8. $\frac{x^2 + 5x + 6}{x + 2}$
- 3.9. $\frac{z^2 + 3z - 10}{z - 2}$
- 3.10. $\frac{2x^2 + 7x + 3}{x + 3}$
- 3.11. $\frac{y^2 - 10y + 25}{y - 5}$
- 3.12. $\frac{4 - x}{x - 4}$
- 3.13. $\frac{2x^2 - 8}{x^2 - 4}$
- 3.14. $\frac{c^3 - 4c}{c^2 - 4}$
- 3.15. $\frac{A^2 - 3A - 10}{A^2 - 25}$

After attempting the questions above, please click [this link](#) to find the answers.

Version history and licensing

v1.0: initial version created 12/25 by Donald Campbell as part of a University of St Andrews VIP project.

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