

Worksheet: Multiplying and Dividing Algebraic Fractions

This worksheet has questions about multiplying and dividing algebraic fractions.

Model answers
to this sheet



Multiplying and Dividing
Algebraic Fractions
study guide



1) Multiply the following algebraic fractions:

a) $\frac{3}{x} \times \frac{y}{7}$ b) $\frac{6y}{x^2} \times \frac{z}{7}$ c) $\frac{1}{k^2} \times \frac{v}{10}$ d) $\frac{4p^3}{4+s} \times \frac{s}{t}$

2) Multiply the following algebraic fractions:

a) $\frac{2}{1} \times \frac{y}{9}$ b) $2 \times \frac{y}{9}$ c) $4y \times \frac{y}{7x^2}$ d) $\frac{\lambda}{8} \times 3\mu$

3) Multiply and simplify the following algebraic fractions:

a) $\frac{3}{s} \times \frac{s}{7}$ b) $\frac{r^2}{s^2} \times \frac{s}{r}$ c) $\frac{3}{x^2} \times \frac{x}{7}$ d) $\frac{12p^3}{q^2} \times \frac{q^5}{4p^4}$

e) $\frac{81m^6}{n^4} \times \frac{4n^7m}{9}$ f) $\frac{6x^3y^5z^2}{10x^4y^3z^4} \times \frac{5x^2y^2z^6}{3xy^4z^4}$ g) $\frac{4f^3}{(u+3)^2} \times \frac{u+3}{t}$

h) $\frac{-7\pi r^3}{2\theta} \times \frac{K_0\theta}{14\pi r^2}$ i) $\frac{4p^3}{(4+s)^2} \times -\frac{4+s}{t}$ j) $(x-1) \times \frac{-1}{x+1}$

k) $(-x-1) \times \frac{1}{x+1}$ l) $\frac{1}{v+3} \times (3v+9)$ m) $5 \times \frac{3/5}{g-3}$

4) Divide and simplify the following algebraic fractions:

a) $\frac{3}{x} \div \frac{y}{7}$

b) $\frac{y}{7} \div \frac{3}{x}$

c) $\frac{x}{3} \div \frac{7}{y}$

d) $\frac{7}{y} \div \frac{x}{3}$

e) $\frac{a^3 b^6 c^4}{7} \div \frac{a^2 b^6 c^5}{x}$

f) $\frac{K_0}{5A} \div \frac{K_0}{5A}$

g) $5 \div \frac{z}{7}$

h) $\frac{x}{2y} \div 4$

i) $\frac{4(p-4)^3}{4+s} \div \frac{(p-4)^4}{5+s}$

5) [Harder] Remember a fraction is just another way of writing a division of the numerator by the denominator. Simplify the following:

a) $1 \div \frac{1}{x}$

b) $\frac{1}{1/x}$

c) $1 \div \frac{1}{1/x}$

d) $\frac{1}{\frac{1}{\frac{1}{x}}}$

e)
$$\frac{\frac{1}{\frac{1}{\frac{1}{\frac{1}{\frac{1}{x}}}}}}{1}$$

f)
$$\frac{\frac{1}{\frac{1}{\frac{1}{\frac{1}{\frac{1}{x}}}}}}{1}$$

g) $x^{(-1)^5}$

h) $x^{(-1)^6}$



This worksheet is one of a series on mathematics produced by the Learning Enhancement Team.

Scan the QR-code with a smartphone app for [more resources](#).



University of East Anglia

STUDENT SUPPORT SERVICE