



# Fractions and indices Exercices

## Fractions and indices 1

**Exercise 1:** Calculate and give the result as a fraction in its simplest form.

a)  $\frac{5}{14} + \frac{16}{14}$

$\frac{7}{12} + \frac{1}{6}$

$\frac{7}{8} + \frac{3}{10}$

$\frac{9}{5} + \frac{4}{9} + \frac{2}{6}$

b)  $\frac{125}{22} - \frac{4}{22}$

$\frac{15}{36} - \frac{4}{3}$

$\frac{8}{7} - \frac{16}{5} + \frac{12}{35}$

c)  $\frac{3 \times 8}{5 \times 11}$

$\frac{21 \times 24}{40 \times 49}$

$\frac{-2 \times -6}{9 \times -5}$

$3 \times \frac{-4}{13}$

d)  $\frac{3}{4} \div \frac{5}{7}$

$\frac{\frac{8}{5}}{\frac{16}{15}}$

$17 \div \frac{16}{3}$

$\frac{9}{\frac{-45}{2}}$

**Exercise 2:** Calculations using powers. Give the results in the form  $a^n$  (where  $a$  and  $n$  are whole numbers).

a)  $7^5 \times 7^3$

b)  $\frac{8^9}{8^3}$

c)  $9^4 \times 3^4$

d)  $(5^4)^6$

e)  $\frac{1}{8^5}$

f)  $6^9 \times 6^{-11}$

g)  $\frac{5^{-3}}{5^7}$

h)  $\frac{1}{7^{-4}}$

**Exercise 3:** Write the following numbers in standard form.

a) 23 000 000

b) 4 007 000

c) -234 500 000

d) 0.002 318

e) -0.023 046

f) 0.000 023 768

**Exercise 4:** Calculate, giving your answer in its simplest form.

a)  $\frac{2}{7} + \frac{1}{7} \times \frac{8}{3}$

b)  $\frac{7}{5} + \frac{3}{5} \times \frac{11}{6}$

c)  $\frac{1}{3} - \frac{1}{3} \times \frac{4}{7}$

d)  $\frac{2}{3} - \frac{5}{3} \times \frac{21}{15}$

e)  $\frac{6}{5} \div \left( \frac{1}{15} - \frac{1}{5} \right)$

f)  $\frac{7}{9} \div \left( \frac{1}{3} - 2 \right)$

**Exercise 5:** Write the following in standard form

a)  $54.2 \times 10^3$

b)  $120 \times 10^{-4}$

c)  $-17.4 \times 10^{-3}$

d)  $0.007 \times 10^2$

**Exercise 6:** Write the following in standard form

a)  $5 \times \frac{10^7 \times 10^{-3}}{10}$

b)  $\frac{4 \times 10^{14} \times 12}{3 \times 10^{11}}$

c)  $\frac{5 \times 10^{-3} \times 12 \times 10^4}{3 \times 10 \times 2 \times 10^{-1}}$

## Fractions and indices 2

**Exercise 1** Calculate, and give the results in the simplest form.

$$\text{a) } \frac{2 \times \frac{3}{7}}{\frac{5}{3} - 1}$$

$$\text{b) } \frac{4}{5} - 2 \times \frac{6}{5}$$

$$\text{c) } \frac{2 - \frac{1}{3}}{\left(\frac{1}{2}\right)^2}$$

$$\text{d) } -\frac{7}{9} - \frac{2}{9} \times \frac{3}{4}$$

$$\text{e) } \frac{4}{3} - 2 \times \frac{13+1}{13-1}$$

$$\text{f) } \frac{5}{6} - \frac{7}{6} \times \frac{1}{14} + \frac{2}{3}$$

$$\text{g) } \frac{3}{7} \div \frac{4}{21} - \frac{5}{2}$$

$$\text{h) } \left(4 - \frac{2}{3}\right) \left(2 - \frac{4}{3}\right)$$

$$\text{i) } \left(3 - 4 \times \frac{2}{3}\right) \div \frac{1}{12}$$

$$\text{j) } \left(\frac{5}{6} - \frac{2}{3}\right)^2$$

$$\text{k) } \frac{\frac{3}{4} - \frac{7}{8}}{\frac{5}{2} + \frac{11}{4} + \frac{23}{8}}$$

$$\text{l) } \frac{\frac{7}{3} + \frac{1}{9}}{\frac{7}{3} - 3}$$

**Exercise 2** Calculate, and give the results in their simplest form (power of a whole number, standard form)

$$\text{a) } 6 - 4 \left(\frac{1}{4} - 1\right)^2$$

$$\text{b) } \frac{7 \times (7^{-2})^{-4}}{7^{11}}$$

$$\text{c) } \frac{3,2 \times 10^{-3} \times 5 \times (10^2)^3}{4 \times 10^{-2}}$$

$$\text{d) } -\frac{4 \times 10^{-2} \times (-5) \times 10^7}{3 \times 10^5}$$

$$\text{e) } \frac{(2^2 \times 5^{-4})^2}{(4^2 \times 10^{-3})^3}$$

$$\text{f) } \left(\frac{5}{12} - \frac{5}{3}\right)^3$$

$$\text{g) } 3 \left(2 - \frac{4}{7}\right)^2 - \frac{90}{49}$$

$$\text{h) } \left[\frac{(6^3)^{-2} \times 6^6}{6^4}\right]^2$$

## Fractions and indices Brevet Questions

All these exercises are extracts from brevet exam papers.

**Exercise 1 :** Calculate, giving the result in its simplest form

$$A = \frac{7}{4} - \frac{3}{4} \times \frac{8}{9}$$

$$B = \left(1 - \frac{2}{3}\right) \div \left(1 + \frac{2}{3}\right)$$

**Exercise 2 :** Write D first as a decimal, and then in standard form.

$$D = \frac{7 \times 10^{-12} \times 6 \times 10^5}{21 \times 10^{-4}}$$

**Exercise 3 :** Calculate and give the result as a fraction in its simplest form

$$E = \frac{2}{3} \times 4 + \frac{7}{6}$$

$$F = \frac{2}{5} \times \frac{3}{4} - \frac{2}{1 - \frac{2}{7}}$$

$$G = \frac{2^3}{3^2} \div \frac{2^4}{3}$$

**Exercise 4 :** Calculate and give the result in standard form

$$H = 15 \times (10^7)^2 \times 3 \times 10^{-5}$$