

## Exercise 2                      Algebra Powers, fractions

### Objective

- be able to perform basic algebraic transformations of powers and fractions.

### Problems

1. Evaluate each expression:

a)	$2^4 \cdot 2^3$	b)	$2^4 \cdot 2^{-3}$	c)	$2^4 \cdot (-2)^{-3}$
d)	$(2^3)^2$	e)	$(2^{-3})^2$	f)	$(-2^{-3})^{-2}$
g)	$((-2)^{-3})^{-2}$	h)	$-(2^{-3})^{-2}$	i)	$\left(-\frac{1}{5}\right)^{-2}$
j)	$\left(-\frac{3}{4}\right)^{-3}$				

2. Simplify each expression:

a)	$a^3 \cdot a^2$	b)	$5^{n-1} \cdot 5^4$	c)	$7^{n+1} \cdot 7^{n-1}$
d)	$a^{x+5} : (a^x \cdot a^5)$	e)	$(2a^3 \cdot 3a^2)^2$	f)	$(a^2b)^{25} \cdot (ab^4)^{25}$
g)	$\frac{10a^{-3}}{5a^{-2}} \cdot 2a^3$				

3. Simplify each fraction:

a)	$\frac{24a^2bc^2}{56abc}$	b)	$\frac{uw}{uv+uw}$	c)	$\frac{n^3-n}{n^3+n^2}$
d)	$\frac{(m+5)^2 - (n+1)^2}{(m+7) - (n+3)}$				

4. Simplify and rewrite the expression with a single fraction:

a)	$\frac{1}{m+1} + \frac{m}{m+1}$	b)	$\frac{2p}{15q} + \frac{8p}{9q}$	c)	$\frac{1}{r^2} - \frac{1}{r^3}$
d)	$d - \frac{nd-2}{n}$	e)	$\frac{t+7}{3t-6} - \frac{t+4}{t^2-2t}$	f)	$\frac{d-1}{18d} \cdot \frac{12d^2}{1-d}$
g)	$\frac{\frac{u}{v}}{x}$	h)	$\frac{\frac{x}{u}}{v}$	i)	$\frac{2e-6f}{\frac{3e^2-9ef}{2f}}$
j)	$\frac{\frac{n}{n^2-1}}{\frac{1}{n+1} - \frac{1}{n-1}}$	k)	$\frac{\frac{z}{z+6} - \frac{8}{z}}{z - \frac{32}{z(z+6)}}$		

