

## P2 - Integer Exponents

### Review problems

1. **Order of operations and exponentiating numbers.** Evaluate the following:

(a)  $5^2 - 4^2 + (5 - 4)^2$       (d)  $4 - 5(4^2 - 3^3)^2$

2. Explain the difference between the following pairs of expressions:

(a)  $3^2$  and  $2^3$       (b)  $(4 + 5)^2$  and  $4^2 + 5^2$       (c)  $4 - 7(2 + 3)$  and  $(4 - 7)(2 + 3)$

### Basic knowledge

3. Evaluate each expression:

(a)  $\frac{2^3 \cdot 3^7}{2^5 \cdot 3^6}$       (b)  $5^7 \cdot \frac{5^2}{5^9}$

4. Simplify the following. Assume all variables are positive.

(a)  $\frac{16x^3}{(2x)^4}$       (b)  $\frac{16(x^3y)^{-5}}{2(x^4y)^2}$

### Intermediate/Advanced

1. Simplify the following. Assume all variables are positive.

(a)  $\frac{(16x^3y^{-5}z^{-2})^3}{(2x^{-3})^{10}(y^2z^3)^{-1}}$       (b)  $\frac{16(16(xy^2)^2)^{-3}}{(8y^{-1}z)^{-5}} \cdot (2xz^2)^3$