

# Indices Rules - Advanced

Name:	Class:	Date:
-------	--------	-------

Mark	/ 24	%
------	------	---

1) Evaluate, giving your answer as a simplified fraction [3]

a)  $20^{-1}$

b)  $2^{-2}$

c)  $10^{-3}$

2) Give your answer in the form  $\frac{1}{a^b}$ , where a and b are positive integers [1]

$$6^{-4}$$

3) Give your answer in the form  $a^b$ , where a and b are integers [1]

$$\frac{1}{7^6}$$

4) Give your answer in the form  $\frac{a}{b^c}$ , where a,b and c are positive integers [1]

$$2 \times 5^{-2}$$

5) Give your answer in the form  $\frac{a}{b^c}$ , where a,b and c are integers [1]

$$-1 \times 5^{-3}$$

6) Evaluate [4]

a)  $36^{\frac{1}{2}}$

b)  $125^{\frac{1}{3}}$

c)  $125^{\frac{2}{3}}$

d)  $4^{\frac{3}{2}}$

7) Evaluate, giving your answer as an integer or simplified fraction [3]

a)  $100^{-\frac{1}{2}}$

b)  $\left(\frac{8}{7}\right)^3$

c)  $\left(\frac{10}{3}\right)^{-3}$

8) Evaluate the following, giving your answer as a simplified fraction [2]

a)  $\left(\frac{27}{1000}\right)^{\frac{2}{3}}$

b)  $\left(\frac{125}{8}\right)^{-\frac{2}{3}}$

9) Give the following expression in index form [5]

a)  $\sqrt{3}$

b)  $\sqrt[3]{6}$

c)  $\sqrt[5]{3}$

d)  $\sqrt{2^3}$

e)  $\frac{1}{\sqrt[3]{7}}$

10) Show the following as a power of 10 [1]

100

11) Show the following as a power of 2 [1]

$4^{-2}$

12) Show the following as a power of 5 [1]

$25^{\frac{3}{2}}$

## Solutions for the assessment Indices Rules - Advanced

1) a)  $\frac{1}{20}$

b)  $\frac{1}{4}$

c)  $\frac{1}{1000}$

2)  $\frac{1}{6^4}$

3)  $7^{-6}$

4)  $\frac{2}{5^2}$

5)  $-\frac{1}{5^3}$

6) a) 6

b) 5

c) 25

d) 8

7) a)  $\frac{1}{10}$

b)  $\frac{512}{343}$

c)  $\frac{27}{1000}$

8) a)  $\frac{9}{100}$

b)  $\frac{4}{25}$

9) a)  $3^{\frac{1}{2}}$

b)  $6^{\frac{1}{3}}$

c)  $3^{\frac{1}{5}}$

d)  $2^{\frac{3}{2}}$

e)  $\frac{1}{7^{\frac{1}{3}}}$  or  $7^{-\frac{1}{3}}$

10)  $10^2$

11)  $2^{-4}$

12)  $5^3$