Name:

Exam Style Questions

# Negative Indices (Foundation GCSE)

Corbettmaths

Equipment needed: Pen and Calculator

**Guidance**

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 175

Answers and Video Solutions

1. Find the value of $4^{-2}$

$\frac{1}{4^2} = \frac{1}{16}$

$\frac{1}{16}$

**(1)**

2. Work out the value of $3^{-3}$

$\frac{1}{3^3} = \frac{1}{27}$

$\frac{1}{27}$

**(1)**

3. Noah was asked to work out the value of $9^{-2}$

He says "since $9^2 = 81$ that means $9^{-2} = -81$"

Is Noah correct?
Explain your answer.

$\frac{1}{9^2} = \frac{1}{81}$

Noah worked out $9^2$ correctly, but then he should have written "1 over" 81. e.g. $\frac{1}{81}$

**(1)**

4. Write $7^{-2}$ as a fraction

$\frac{1}{7^2} = \frac{1}{49}$

$\frac{1}{49}$

**(1)**

5. Circle the value of $2^{-5}$

$-32$ $\quad \frac{1}{10} \quad$ $\frac{1}{32}$ $\quad -10$

$\frac{1}{2^5} = \frac{1}{32}$ $\quad 2\times2\times2\times2\times2 = 32$

**(1)**

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6. Write $5^{-3}$ as a fraction.

$\frac{1}{5^3} = \frac{1}{125}$

$\frac{1}{125}$

.....

**(1)**

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7. Write down the value of $25^0$

1

.....

**(1)**

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8. Write down the value of $6^{-1}$

$\frac{1}{6}$

.....

**(1)**

9. Evaluate $10^{-4}$

$10^4 = 10 \times 10 \times 10 \times 10$

$= 10000$

$\frac{1}{10000}$

.....

**(1)**

10. Work out $2^4 \times 4^{-2}$

$2^4 = 2 \times 2 \times 2 \times 2$

$= 16$

$4^2 = 16$

$16 \times \frac{1}{16} = \frac{16}{16}$

$= 1$

1

.....

**(2)**

11. Work out

$10^{-2}$

Give your answer as a decimal.

$\frac{1}{10^2} = \frac{1}{100}$

$= 0.01$

0.01

.....

**(2)**

12. Simplify fully $7 \times 7^0 \times 7^{-1}$

$7 \times 1 \times \frac{1}{7}$

$= 7 \times \frac{1}{7}$

$= \frac{7}{7}$

1

.....

**(2)**

13. Arrange in order, from smallest to largest

$$\frac{1}{50} \qquad 5^{-2} \qquad \frac{3}{10} \qquad 2^{-3}$$

.....

**(2)**

14. w is greater than 1. e.g. 2

Write in order, from smallest to largest.

$w^0$ $\quad$ $w^3$ $\quad$ $\frac{w^3}{w^4}$ $\quad$ $w^{-2}$

$2^0$ $\quad$ $2^3$ $\quad$ $\frac{2^3}{2^4}$ $\quad$ $2^{-2}$

$1$ $\quad$ $8$ $\quad$ $\frac{1}{2}$ $\quad$ $\frac{1}{4}$

$w^{-2}$, $\frac{w^3}{w^4}$, $w^0$, $w^3$

**(4)**

15. Work out $6^2 \times 2^{-2}$

$36 \times \frac{1}{2^2}$

$36 \times \frac{1}{4} = 9$

9

.....

**(3)**

16. Write the numbers below in the form $2^n$

(a) 4

$2^2$

.....

**(1)**

(b) 8

$2^3$

.....

**(1)**

(c) $\frac{1}{2}$

$2^{-1}$

.....

**(1)**

(d) $\frac{1}{4}$

$2^{-2}$

.....

**(1)**