



# Index Notation

1 Express each of the following products in index form

a)  $2 \times 2 \times 2$

b)  $10 \times 10$

c)  $4 \times 4$

d)  $2 \times 2 \times 2 \times 2 \times 2 \times 2$

e)  $a \times a \times a \times a$

f)  $b \times b \times b \times b \times b$

g)  $k \times k \times k$

h)  $y \times y \times y \times y \times y \times y \times y \times y \times y \times y$

2 Write the following in expanded form

a)  $8^2$

b)  $5^3$

c)  $3^5$

d)  $9^4$

e)  $a^4$

f)  $t^6$

g)  $y^3$

h)  $b^5$

3 Evaluate the following

a)  $2^4$

b)  $5^3$

c)  $3^2$

d)  $1^{20}$

4 Write the prime factors of these numbers in index form

a) 20

b) 96

c) 36

d) 100

5 Write the following in index form

a)  $2 \times a \times b \times a \times 2 \times a \times 2 \times b$

b)  $3a \times 2b \times 3a \times 2b$

c)  $4d \times 2f \times 4d \times 2f$

d)  $5ab(5ab)5b$

e)  $2cd(2cd)(2cd)(2cd)$

f)  $7ab \times 7ab \times ab \times 7$

## Answers

### Question 1

- |          |           |
|----------|-----------|
| a) $2^3$ | b) $10^2$ |
| c) $4^2$ | d) $2^6$  |
| e) $a^4$ | f) $b^5$  |
| g) $k^3$ | h) $y^8$  |

### Question 2

- |  |  |
|--|--|
| a) $8 \times 8$                            | b) $5 \times 5 \times 5$                   |
| c) $3 \times 3 \times 3 \times 3 \times 3$ | d) $9 \times 9 \times 9 \times 9$          |
| e) $a \times a \times a \times a$          | f) $t \times t \times t \times t \times t$ |
| g) $y \times y \times y$                   | h) $b \times b \times b \times b \times b$ |

### Question 3

- |       |        |
|-------|--------|
| a) 16 | b) 125 |
| c) 9  | d) 1   |

### Question 4

- |                     |                     |
|---------------------|---------------------|
| a) $2^2 \times 5$   | b) $2^5 \times 3$   |
| c) $2^2 \times 3^2$ | d) $2^2 \times 5^2$ |

### Question 5

- |                      |                      |
|----------------------|----------------------|
| a) $2^3 a^3 b^2$     | b) $2^2 3^2 a^2 b^2$ |
| c) $4^2 2^2 d^2 f^2$ | d) $5^3 a^2 b^3$     |
| e) $2^4 c^4 d^4$     | f) $7^3 a^3 b^3$     |