

CHAPTER 3

Indices

UNIT 1: Index notation

QUESTION 1 Write the following in expanded form.

- | | | |
|-----------------|-----------------|-----------------|
| a $4^3 =$ _____ | b $8^6 =$ _____ | c $5^3 =$ _____ |
| d $6^4 =$ _____ | e $2^4 =$ _____ | f $8^2 =$ _____ |
| g $3^5 =$ _____ | h $3^6 =$ _____ | i $9^3 =$ _____ |

QUESTION 2 Write the following without indices (in expanded form).

- | | |
|----------------------------|---|
| a $(1.5)^3 =$ _____ | b $3^2 \times 5^5 =$ _____ |
| c $2^4 \times 3^6 =$ _____ | d $3^4 \times 4^2 =$ _____ |
| e $7^5 =$ _____ | f $\left(\frac{3}{4}\right)^5 =$ _____ |
| g $5^2 \times 8^6 =$ _____ | h $(9)^5 =$ _____ |
| i $(-5)^3 =$ _____ | j $\left(-\frac{2}{3}\right)^5 =$ _____ |

QUESTION 3 Change the following to expanded form.

- | | |
|---------------------------------------|---------------------------------------|
| a $6^3 =$ _____ | b $2^6 =$ _____ |
| c $7^4 =$ _____ | d $3^2 \times 4^3 =$ _____ |
| e $2^5 \times 3^4 =$ _____ | f $5^2 \times 3^3 \times 4^4 =$ _____ |
| g $2^3 \times 3^4 \times 4^5 =$ _____ | h $5^3 \times 6^5 =$ _____ |
| i $-3 \times 2^3 \times 5^5 =$ _____ | j $17 \times 3^3 \times 5^9 =$ _____ |

QUESTION 4 Write the following in index form.

- | | |
|--|---|
| a $3 \times 3 \times 3 \times 3 \times 3 \times 3 =$ _____ | b $5 \times 5 \times 5 \times 5 =$ _____ |
| c $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 =$ _____ | d $9 \times 9 \times 9 \times 9 \times 9 =$ _____ |
| e $7 \times 7 \times 7 \times 7 \times 7 \times 7 =$ _____ | f $4 \times 4 \times 4 =$ _____ |
| g $-3 \times -3 \times -3 \times -3 =$ _____ | h $\times \times \times =$ _____ |
| i $1.8 \times 1.8 \times 1.8 \times 1.8 \times 1.8 =$ _____ | j $3.5 \times 3.5 \times 3.5 \times 3.5 =$ _____ |

QUESTION 5 Write the following using index notation.

- | | |
|--|---|
| a $2 \times 2 \times 2 \times 3 \times 3 \times 3 =$ _____ | b $5 \times 5 \times 5 \times 6 \times 6 =$ _____ |
| c $4 \times 4 \times 4 \times 4 \times 6 \times 6 \times 6 =$ _____ | d $2 \times 2 \times 2 \times 2 \times 8 \times 8 =$ _____ |
| e $4 \times 4 \times 4 \times 4 \times 4 \times 5 \times 5 =$ _____ | f $2 \times 2 \times 2 \times 2 \times 2 \times 4 \times 4 =$ _____ |
| g $7 \times 7 \times 7 \times 7 \times 7 \times 3 \times 3 \times 3 =$ _____ | h $7 \times 7 \times 7 \times 5 \times 5 \times 5 =$ _____ |
| i $5 \times 5 \times 5 \times 2 \times 2 \times 2 =$ _____ | j $4 \times 4 \times 4 \times 5 \times 5 \times 5 \times 5 =$ _____ |

QUESTION 6 Evaluate the following.

- | | | |
|-----------------|-----------------|---------------------|
| a $6^5 =$ _____ | b $3^4 =$ _____ | c $(1.1)^3 =$ _____ |
| d $5^4 =$ _____ | e $7^3 =$ _____ | f $9^4 =$ _____ |
| | h $8^3 =$ _____ | i $10^7 =$ _____ |