

## Fractional Indices



## **REVISE THIS TOPIC**

(a) Write down the value of  $9^{\frac{1}{2}}$ 



(b) Write down the value of  $64^{\frac{1}{2}}$ 

(c) Write down the value of  $27^{\frac{1}{3}}$ 

(d) Write down the value of  $10000^{\frac{1}{4}}$ 

(e) Write down the value of  $8^{\frac{1}{3}}$ 

(f) Write down the value of  $16^{\frac{1}{2}}$ 

(g) Write down the value of  $32^{\frac{1}{5}}$ 

(Total for Question 1 is 7 marks)











2 (a) Write down the value of  $4^{\frac{3}{2}}$ 



(b) Write down the value of  $64^{\frac{2}{3}}$ 

8

(c) Write down the value of  $16^{\frac{3}{4}}$ 

16

(d) Write down the value of  $1000^{\frac{5}{3}}$ 

(1)

(e) Write down the value of  $25^{\frac{3}{2}}$ 

100 000

(f) Write down the value of  $1^{\frac{4}{5}}$ 

125

(g) Write down the value of  $32^{\frac{3}{5}}$ 

(1)

(5) Write down the value of  $81^{\frac{3}{4}}$ 

8

27

(Total for Question 2 is 8 marks)



3 (a) Find the value of  $\left(\frac{4}{25}\right)^{\frac{3}{2}}$ 



(b) Find the value of  $\left(\frac{8}{125}\right)^{\frac{1}{3}}$ 

<u>8</u> 125

(c) Find the value of  $\left(\frac{8}{27}\right)^{\frac{2}{3}}$ 

2 5

(d) Find the value of  $\left(\frac{1}{32}\right)^{\frac{4}{5}}$ 

4 9 (2)

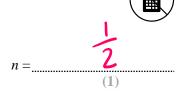
(e) Find the value of  $\left(\frac{9}{100}\right)^{\frac{3}{2}}$ 

1st

27 1000

(Total for Question 3 is 10 marks)

4 (a)  $36^n = 6$  Work out the value of n.



(b)  $100^n = 1000$ Work out the value of n.

n –	3 2	
n =	(1)	

(c)  $8^n = 16$  Work out the value of n.



(d)  $25^n = 125$ Work out the value of n.



(e)  $125^n = 25$ Work out the value of n.



(f)  $32^n = 4$  Work out the value of n.



(g)  $81^n = 9$  Work out the value of n.



(h)  $400^n = 8000$ Work out the value of *n*.



(Total for Question 4 is 8 marks)



5 (a) Simplify  $(49x^8y^{10})^{\frac{1}{2}}$ 



(b) Simplify  $(64x^9y^{30})^{\frac{1}{3}}$ 

7x4y5

(c) Simplify  $(125x^3y^{12})^{\frac{2}{3}}$ 

4 x<sup>3</sup> y<sup>10</sup>

(d) Simplify  $(a^6b^8c^4)^{\frac{3}{2}}$ 

25 x² y³

(e) Simplify  $(16m^{20}n^4)^{\frac{1}{4}}$ 

a b c



2 m n

(Total for Question 5 is 10 marks)



**6** (a) Simplify  $\left(\frac{25x^4}{81y^{18}}\right)^{\frac{1}{2}}$ 



(b) Simplify  $\left(\frac{8p^3}{27q^{21}}\right)^{\frac{1}{3}}$ 

(c) Simplify  $\left(\frac{a^6b^3}{125m^9n^{30}}\right)^{\frac{2}{3}}$ 

(d) Simplify  $\left(\frac{16k^{100}}{81x^{16}y^{32}}\right)^{\frac{3}{4}}$ 

27 x<sup>12</sup> y<sup>24</sup>

(Total for Question 6 is 14 marks)

