Instructions

• Use black ink or ball-point pen.
• Answer all questions.
• Answer the questions in the spaces provided
  – there may be more space than you need.
• Diagrams are NOT accurately drawn, unless otherwise indicated.
• You must show all your working out.

Information

• The marks for each question are shown in brackets
  – use this as a guide as to how much time to spend on each question.

Advice

• Read each question carefully before you start to answer it.
• Keep an eye on the time.
• Try to answer every question.
• Check your answers if you have time at the end
Find the value of $3^{-1}$

(Total for question 1 is 1 mark)

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

(Total for question 2 is 1 mark)

Find the value of $5^{-1}$

(Total for question 3 is 1 mark)

Find the reciprocal of 3

(Total for question 4 is 1 mark)
5  Find the value of \(100^{\frac{1}{2}}\)

.......................................................... (Total for question 5 is 1 mark)

6  Find the value of \(64^{\frac{1}{2}}\)

.......................................................... (Total for question 6 is 1 mark)

7  Find the value of \(49^{\frac{1}{2}}\)

.......................................................... (Total for question 7 is 1 mark)

8  Find the value of \(81^{\frac{1}{2}}\)

.......................................................... (Total for question 8 is 1 mark)

9  Find the value of \(36^{-\frac{1}{2}}\)

.......................................................... (Total for question 9 is 1 mark)
10  Find the value of $64^{\frac{1}{3}}$

(Total for question 10 is 1 mark)

11  Find the value of $8^{\frac{1}{3}}$

(Total for question 11 is 1 mark)

12  Find the value of $27^{\frac{1}{3}}$

(Total for question 12 is 1 mark)

13  Find the value of $125^{\frac{1}{3}}$

(Total for question 13 is 1 mark)

14  Find the value of $64^{\frac{1}{3}}$

(Total for question 14 is 1 mark)
15 Find the value of $64^{\frac{2}{3}}$

16 Find the value of $125^{\frac{2}{3}}$

17 Find the value of $8^{\frac{2}{3}}$

18 Find the value of $27^{\frac{2}{3}}$

19 Find the value of $(8x^6)^{\frac{2}{3}}$
20 Find the value of \( \left( \frac{64}{125} \right)^{-\frac{2}{3}} \)

\[ \text{..................................} \]

(Total for question 20 is 2 marks)

21 Find the value of \( \left( \frac{25}{16} \right)^{-\frac{3}{2}} \)

\[ \text{..................................} \]

(Total for question 21 is 2 marks)

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

\[ \text{..................................} \]

(Total for question 22 is 2 marks)

23 Find the value of \( \left( \frac{9}{4} \right)^{-\frac{3}{2}} \)

\[ \text{..................................} \]

(Total for question 23 is 2 marks)

24 Find the value of \( \sqrt[4]{2 \times 8 \times 10^{12}} \)

\[ \text{..................................} \]

(Total for question 24 is 2 marks)
25  Find the value of \( \sqrt[3]{4 \times 16 \times 10^{15}} \)

(Total for question 25 is 2 marks)

26  Given that \( 3 \times \sqrt{3} = 3^n \)
Find the value \( n \).

(Total for question 26 is 2 marks)

27  Given that \( 3 \times \sqrt{27} = 3^n \)
Find the value \( n \).

(Total for question 27 is 2 marks)

28  Given that \( x = 2^p \) and \( y = 2^q \)
Express in terms of \( x \) and/or \( y \),

(i) \( 2^{p+q} \)

(ii) \( 2^{2p} \)

(iii) \( 2^{q-1} \)

(Total for question 28 is 3 marks)
29  Given that $3^{-n} = 0.2$
    Find the value of $(3^n)^2$

(Total for question 29 is 2 marks)

30  Given that $5^{-n} = 0.5$
    Find the value of $(5^n)^3$

(Total for question 30 is 2 marks)

31  Given that $4^n = 8$
    Find the value of $n$.

(Total for question 31 is 2 marks)

32  Given that $4^{-n} = 32$
    Find the value of $n$.

(Total for question 32 is 2 marks)