

Chapter # 2

Logarithms

Exercise # 2.2

Question # 1: Express each of the following in logarithmic form.

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| <p>(i) $10^3 = 1000$
 $\log_{10} 1000 = 3$ (Ans)</p> <p>(iv) $20^2 = 400$
 $\log_{20} 400 = 2$ (Ans)</p> <p>(vii) $p = q^r$
 $q^r = p$
 $\log_q p = r$ (Ans)</p> | <p>(ii) $2^8 = 256$
 $\log_2 256 = 8$ (Ans)</p> <p>(v) $16^{-\frac{1}{4}} = \frac{1}{2}$
 $\log_{16} \frac{1}{2} = -\frac{1}{4}$ (Ans)</p> <p>(viii) $(32)^{\frac{-1}{5}} = \frac{1}{2}$
 $\log_{32} \frac{1}{2} = \frac{-1}{5}$ (Ans)</p> | <p>(iii) $3^{-3} = \frac{1}{27}$
 $\log_3 \frac{1}{27} = -3$ (Ans)</p> <p>(vi) $11^2 = 121$
 $\log_{11} 121 = 2$ (Ans)</p> |
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Question # 2: Express each of the following in exponential form.

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| <p>(i) $\log_5 125 = 3$
 $5^3 = 125$ (Ans)</p> <p>(iv) $\log_5 5 = 1$
 $5^1 = 5$ (Ans)</p> <p>(vii) $5 = \log_{10} 100000$
 $\log_{10} 100000 = 5$
 $10^5 = 100000$ (Ans)</p> | <p>(ii) $\log_2 16 = 4$
 $2^4 = 16$ (Ans)</p> <p>(v) $\log_2 \frac{1}{8} = -3$
 $2^{-3} = \frac{1}{8}$ (Ans)</p> <p>(viii) $\log_4 \frac{1}{16} = -2$
 $4^{-2} = \frac{1}{16}$ (Ans)</p> | <p>(iii) $\log_{23} 1 = 0$
 $23^0 = 1$ (Ans)</p> <p>(vi) $\frac{1}{2} = \log_9 3$
 $\log_9 3 = \frac{1}{2}$
 $9^{\frac{1}{2}} = 3$ (Ans)</p> |
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Question # 3: Find the value of x in each of the following.

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| <p>(i) $\log_x 64 = 3$
 $x^3 = 64$
 $x^3 = 4^3$
 $x = 4$ (Ans)</p> <p>(iv) $\log_{10} x = -3$
 $10^{-3} = x$
 OR,
 $x = 10^{-3}$
 $x = \frac{1}{10^3}$
 $x = \frac{1}{1000}$ (Ans)</p> | <p>(ii) $\log_5 1 = x$
 $5^x = 1$
 $5^x = 5^0$
 $x = 0$ (Ans)</p> <p>(v) $\log_4 x = \frac{3}{2}$
 $4^{\frac{3}{2}} = x$
 OR,
 $x = 4^{\frac{3}{2}}$
 $x = 2^{2 \times \frac{3}{2}}$
 $x = 2^3$
 $x = 8$ (Ans)</p> | <p>(iii) $\log_x 8 = 1$
 $x^1 = 8$
 $x = 8$ (Ans)</p> <p>(vi) $\log_2 1024 = x$
 $2^x = 1024$
 $2^x = 2^{10}$
 $x = 10$ (Ans)</p> |
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