EduSahara™ Assignment

Name : Solving Logarithmic Equations

Chapter : Logarithms

Grade : ICSE Grade IX

1. Find the value of x if $\log_x 8 = 3$

   (i) 3 (ii) 2 (iii) 0 (iv) 1 (v) 4

2. Find the value of x if $\log_5 x = 3$

   (i) 125 (ii) 126 (iii) 124 (iv) 122 (v) 128

3. Find the value of x if $\log_3 9 = x$

   (i) 1 (ii) 5 (iii) 3 (iv) 2 (v) 0

4. Find the value of x if $\log_{\sqrt{3}}(-5x+2) = 2$

   (i) $(\frac{-3}{5})$ (ii) $\frac{1}{5}$ (iii) $(\frac{-1}{3})$ (iv) $(\frac{-1}{7})$ (v) $(\frac{-1}{5})$

5. Find the value of x if $\log_x \frac{1}{64} = -3$

   (i) 2 (ii) 3 (iii) 6 (iv) 5 (v) 4

6. Find the value of x if $\log(x+9) + \log(x-9) = \log 8$

   (i) $(89, (-\sqrt{89}))$ (ii) $(\sqrt{89}, (-\sqrt{89}))$ (iii) $(\sqrt{89}, (-89))$ (iv) $(89, (-89))$

7. Find the value of x if $\log_9(x+2) - \log_9(x-2) = 1$

   (i) $\frac{5}{2}$ (ii) $\frac{9}{4}$ (iii) $\frac{3}{2}$ (iv) $\frac{7}{2}$ (v) 3

8. Find the value of x if $\log_6(x^2-13) = 2$

   (i) $(7, (-6))$ (ii) $(8, (-6))$ (iii) $(8, (-7))$ (iv) $(7, (-7))$

9. Solve $\frac{\log x}{\log 3} = \frac{\log 9}{\log \frac{1}{3}}$

(i) $\frac{1}{11}$ (ii) $\frac{1}{3}$ (iii) $\frac{1}{7}$ (iv) $(\frac{-1}{9})$ (v) $\frac{1}{9}$

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10. Find the value of x if $\log_x 4 = 2$

(i) 2 (ii) 5 (iii) 1 (iv) 3 (v) 0

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11. Find the value of x if $\log_4 x = 3$

(i) 63 (ii) 64 (iii) 61 (iv) 65 (v) 67

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12. Find the value of x if $\log_5 125 = x$

(i) 3 (ii) 2 (iii) 0 (iv) 4 (v) 5

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13. Find the value of x if $\log_{\sqrt{4}}(6x-9) = 2$

(i) $\frac{13}{6}$ (ii) $\frac{11}{6}$ (iii) $\frac{5}{2}$ (iv) $\frac{9}{4}$ (v) $\frac{17}{8}$

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14. Find the value of x if $\log_x \frac{1}{125} = -3$

(i) 5 (ii) 6 (iii) 4 (iv) 3 (v) 7

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15. Find the value of x if $\log(x+1) + \log(x-1) = \log 2$

(i) $(\sqrt{3},(-\sqrt{3}))$ (ii) $(3,(-\sqrt{3}))$ (iii) $(\sqrt{3},(-3))$ (iv) $(3,(-3))$

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16. Find the value of x if $\log_4(x+7) - \log_4(x-7) = 1$

(i) 11 (ii) $\frac{57}{5}$ (iii) $\frac{37}{3}$ (iv) $\frac{35}{3}$ (v) 13

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17. Find the value of x if $\log_6(x^2-13) = 2$

(i) $(8,(-6))$ (ii) $(7,(-6))$ (iii) $(8,(-7))$ (iv) $(7,(-7))$

18. Solve $\frac{\log x}{\log 3} = \frac{\log 25}{\log \frac{1}{5}}$

(i) $\frac{1}{3}$ (ii) $\frac{1}{7}$ (iii) $\frac{1}{11}$ (iv) $(\frac{-1}{9})$ (v) $\frac{1}{9}$

19. If $\frac{\log(x^2+4)}{\log 2x^2} = 1$, find x

(i) $(-1,3)$ (ii) $(-2,2)$ (iii) $(1,2)$ (iv) $(-2,1)$ (v) $(1,-2)$

20. If $\frac{\log(x^2+25)}{\log 2x^2} = 1$, find x

(i) $(-5,5)$ (ii) $(-5,4)$ (iii) $(-2,5)$ (iv) $(4,-5)$ (v) $(-4,6)$

Assignment Key

1) (ii)	2) (i)	3) (iv)	4) (v)	5) (v)	6) (ii)
7) (i)	8) (iv)	9) (v)	10) (i)	11) (ii)	12) (i)
13) (i)	14) (i)	15) (i)	16) (iv)	17) (iv)	18) (v)
19) (ii)	20) (i)				