

EduSahara™ Learning Center Assignment

Grade : Class IX, ICSE

Chapter : Logarithms

Name : Solving Logarithmic Equations

1. Find the value of x if $\log_x 625 = 4$

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

2. Find the value of x if $\log_4 x = 4$

- (i) 257 (ii) 259 (iii) 253 (iv) 255 (v) 256

3. Find the value of x if $\log_4 16 = x$

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

4. Find the value of x if $\log_{\sqrt{3}} (-6x-4) = 2$

- (i) $(-\frac{5}{6})$ (ii) $(-\frac{5}{4})$ (iii) $(-\frac{3}{2})$ (iv) $(-\frac{7}{6})$ (v) $(-\frac{9}{8})$

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

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

6. Find the value of x if $\log(x+4) + \log(x-4) = \log 3$

- (i) $(\sqrt{19}, (-\sqrt{19}))$ (ii) $(\sqrt{19}, (-\sqrt{19}))$ (iii) $(\sqrt{19}, (-19))$ (iv) $(\sqrt{19}, (-\sqrt{19}))$

7. Find the value of x if $\log_4 (x+9) - \log_4 (x-9) = 1$

- (i) 16 (ii) 14 (iii) 13 (iv) 17 (v) 15

8. Find the value of x if $\log_2 (x^2-21) = 2$

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- (i) (5 , ' - 4 ') (ii) (5 , ' - 5 ') (iii) (6 , ' - 4 ') (iv) (6 , ' - 5 ')
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9. Solve $\frac{\log x}{\log 6} = \frac{\log 4}{\log \frac{1}{2}}$

- (i) $\frac{1}{12}$ (ii) $\frac{1}{38}$ (iii) $(-\frac{1}{36})$ (iv) $\frac{1}{34}$ (v) $\frac{1}{36}$
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10. Find the value of x if $\log_x 625 = 4$

- (i) 3 (ii) 4 (iii) 5 (iv) 7 (v) 6
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11. Find the value of x if $\log_5 x = 2$

- (i) 26 (ii) 28 (iii) 24 (iv) 25 (v) 23
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12. Find the value of x if $\log_2 8 = x$

- (i) 4 (ii) 5 (iii) 2 (iv) 3 (v) 1
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13. Find the value of x if $\log_{\sqrt{3}} (8x+9) = 2$

- (i) $(-\frac{5}{4})$ (ii) $(-\frac{1}{2})$ (iii) $(-\frac{3}{4})$ (iv) $(-\frac{3}{2})$ (v) $(-\frac{1}{4})$
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14. Find the value of x if $\log_x \frac{1}{256} = -4$

- (i) 3 (ii) 5 (iii) 2 (iv) 4 (v) 6
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15. Find the value of x if $\log (x+5) + \log (x-5) = \log 8$

- (i) $(\sqrt{33}, (-33))$ (ii) $(33, (-33))$ (iii) $(33, (-\sqrt{33}))$ (iv) $(\sqrt{33}, (-\sqrt{33}))$
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16. Find the value of x if $\log_2 (x+7) - \log_2 (x-7) = 1$

- (i) 21 (ii) 18 (iii) 24 (iv) 22 (v) 20
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17. Find the value of x if $\log_2(x^2-5) = 2$

- (i) $(4, -3)$ (ii) $(4, -2)$ (iii) $(3, -3)$ (iv) $(3, -2)$
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18. Solve $\frac{\log x}{\log 7} = \frac{\log 49}{\log \frac{1}{7}}$

- (i) $\frac{1}{51}$ (ii) $\frac{1}{47}$ (iii) $\frac{1}{49}$ (iv) $\frac{3}{49}$ (v) $(\frac{-1}{49})$
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19. If $\frac{\log(x^2+1)}{\log 2x^2} = 1$, find x

- (i) $(2, 1)$ (ii) $(-1, 1)$ (iii) $(-1, 0)$ (iv) $(0, -1)$ (v) $(0, 2)$
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20. If $\frac{\log(x^2+4)}{\log 2x^2} = 1$, find x

- (i) $(-2, 2)$ (ii) $(-1, 3)$ (iii) $(-2, 1)$ (iv) $(0, 2)$ (v) $(1, -2)$
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Assignment Key

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