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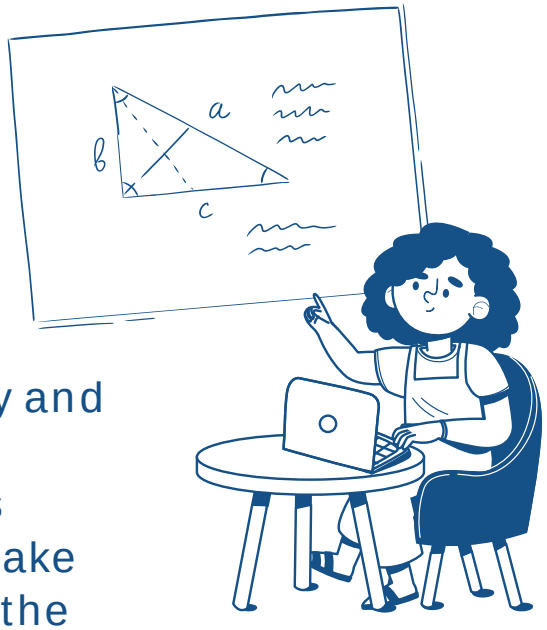

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Solving Logarithmic Equations

Name: _____

1 Logarithmic Equation

Answer the questions below

Solve each logarithmic equation. Round the answer to two decimal places.

1) $\ln(x + 5) = 0.2$

x =

2) $\ln(x - 4.5) = 0.7$

x =

3) $\ln 5x = 0.01$

x =

4) $4 \ln(x + 7.9) = 2.5$

x =

5) $\ln\left(\frac{x}{0.5}\right) = 1.9$

x =

6) $\ln(x - 8) = 0.26$

x =

7) $\ln(x - 0.09) = 1.04$

x =

8) $5 \ln(x + 3.6) = 1.7$

x =

9) $\ln 2.7x = 0.98$

x =

10) $\ln\left(\frac{x}{0.2}\right) = 0.56$

x =

Name: _____

2 Logarithmic Equation

Answer the questions below

Solve each logarithmic equation.

1) $\log_2 (x+4) = 2 \log_2 8$

x = ( )

2) $\log_4 (4x-2) = \log_4 (2x+34)$

x = ( )

3) $\log_6 5x = \log_6 75$

x = ( )

4) $\log_5 (7x+3) = \log_5 (8x-32)$

x = ( )

5) $2 \log_3 4 = \log_3 (x+20)$

x = ( )

6) $\log_2 (x-2) = 4 \log_2 3$

x = ( )

7) $\log_3 (3-2x) = 2 \log_3 9$

x = ( )

8) $\log_4 (6x-8) = \log_4 (4x+56)$

x = ( )

9) $\log_5 74 = \log_5 (x+6)$

x = ( )

10) $\log_5 (2x+15) = \log_5 (3x-37)$

x = ( )

11) $\log_7 (x+13) = \log_7 (2x+3)$

x = ( )

12) $\log_6 (3x+12) = \log_6 3$

x = ( )

Name: _____

3 Logarithmic Equation

Answer the questions below

Solve each logarithmic equation.

1) $\log_2 (x+3) + \log_2 (x-3) = \log_2 91$

x =

2) $\log_6 x^3 + \log_6 3 = 4 \log_6 3$

x =

3) $\log_5 (x+5) - \log_5 2 = \log_5 50$

x =

4) $\log_3 (73+x) = \log_3 16 + 2 \log_3 2$

x =

5) $2 \log_8 x + \log_8 2 = \log_8 72$

x =

6) $\log_2 (x-4) - \log_2 4 = 5 \log_2 2$

x =

7) $\log_2 6 + \log_2 (1-x) = 2 \log_2 6$

x =

8) $\log_3 7 = \log_3 (x+41) - \log_3 2$

x =

9) $\log_4 (x-4) + \log_4 5 = \log_4 (3x-2)$

x =

10) $\log_6 x - \log_6 3 = 2 \log_6 5$

x =

Solving Logarithmic Equations

Name: _____

4 Logarithmic Equation

Answer the questions below

Solve each logarithmic equation.

1) $\log_8 (x-14) = \log_8 4 + 2 \log_8 5$

x = ____

2) $\log_4 (2-x) + \log_4 8 = 3 \log_4 6$

x = ____

3) $\log_5 2 = \log_5 (x+67) - \log_5 8$

x = ____

4) $\log_3 x^2 - \log_3 4 = 2 \log_3 8$

x = ____

5) $2 \log_6 x - \log_6 3 = \log_6 27$

x = ____

6) $\log_3 x - 2 \log_3 4 = 3 \log_3 2$

x = ____

7) $\log_7 (27+x) + \log_7 5 = 3 \log_7 5$

x = ____

8) $\log_5 (x+15) + \log_5 6 = \log_5 24$

x = ____

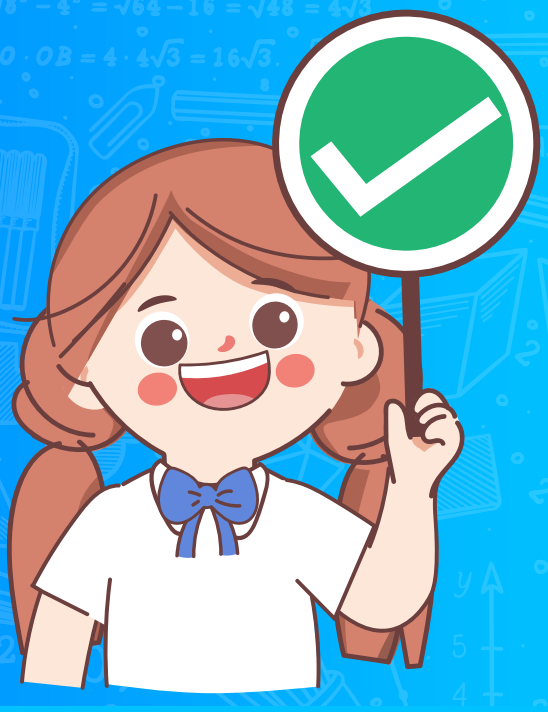
9) $4 \log_2 x - \log_2 8 = \log_2 32$

x = ____

10) $\log_7 (x+2) + \log_7 4 = \log_7 (6x-18)$

x = ____

Right Answers



Right Answers

1 Logarithmic Equation

Answer the questions below

Solve each logarithmic equation. Round the answer to two decimal places.

1) $\ln (x + 5) = 0.2$

x = **– 3.79**

2) $\ln (x – 4.5) = 0.7$

x = **6.51**

3) $\ln 5x = 0.01$

x = **0.2**

4) $4 \ln (x + 7.9) = 2.5$

x = **– 6.03**

5) $\ln \left(\frac{x}{0.5}\right) = 1.9$

x = **3.34**

6) $\ln (x – 8) = 0.26$

x = **9.3**

7) $\ln (x – 0.09) = 1.04$

x = **2.92**

8) $5 \ln (x + 3.6) = 1.7$

x = **– 2.2**

9) $\ln 2.7x = 0.98$

x = **0.99**

10) $\ln \left(\frac{x}{0.2}\right) = 0.56$

x = **0.35**

Right Answers

2 Logarithmic Equation

Answer the questions below

Solve each logarithmic equation.

1) $\log_2 (x+4) = 2 \log_2 8$

x = **60**

2) $\log_4 (4x-2) = \log_4 (2x+34)$

x = **18**

3) $\log_6 5x = \log_6 75$

x = **15**

4) $\log_5 (7x+3) = \log_5 (8x-32)$

x = **35**

5) $2 \log_3 4 = \log_3 (x+20)$

x = **–4**

6) $\log_2 (x-2) = 4 \log_2 3$

x = **83**

7) $\log_3 (3-2x) = 2 \log_3 9$

x = **–39**

8) $\log_4 (6x-8) = \log_4 (4x+56)$

x = **32**

9) $\log_5 74 = \log_5 (x+6)$

x = **68**

10) $\log_5 (2x+15) = \log_5 (3x-37)$

x = **52**

11) $\log_7 (x+13) = \log_7 (2x+3)$

x = **10**

12) $\log_6 (3x+12) = \log_6 3$

x = **–3**

Right Answers

3 Logarithmic Equation

Answer the questions below

Solve each logarithmic equation.

1) $\log_2 (x+3) + \log_2 (x-3) = \log_2 91$

x = **10**

2) $\log_6 x^3 + \log_6 3 = 4 \log_6 3$

x = **3**

3) $\log_5 (x+5) - \log_5 2 = \log_5 50$

x = **95**

4) $\log_3 (73+x) = \log_3 16 + 2 \log_3 2$

x = **–9**

5) $2 \log_8 x + \log_8 2 = \log_8 72$

x = **6**

6) $\log_2 (x-4) - \log_2 4 = 5 \log_2 2$

x = **132**

7) $\log_2 6 + \log_2 (1-x) = 2 \log_2 6$

x = **–5**

8) $\log_3 7 = \log_3 (x+41) - \log_3 2$

x = **–27**

9) $\log_4 (x-4) + \log_4 5 = \log_4 (3x-2)$

x = **9**

10) $\log_6 x - \log_6 3 = 2 \log_6 5$

x = **75**

Right Answers

4 Logarithmic Equation

Answer the questions below

Solve each logarithmic equation.

1) $\log_8 (x-14) = \log_8 4 + 2 \log_8 5$

x = **114**

2) $\log_4 (2-x) + \log_4 8 = 3 \log_4 6$

x = **–25**

3) $\log_5 2 = \log_5 (x+67) - \log_5 8$

x = **–51**

4) $\log_3 x^2 - \log_3 4 = 2 \log_3 8$

x = **16**

5) $2 \log_6 x - \log_6 3 = \log_6 27$

x = **9**

6) $\log_3 x - 2 \log_3 4 = 3 \log_3 2$

x = **128**

7) $\log_7 (27+x) + \log_7 5 = 3 \log_7 5$

x = **–2**

8) $\log_5 (x+15) + \log_5 6 = \log_5 24$

x = **–11**

9) $4 \log_2 x - \log_2 8 = \log_2 32$

x = **4**

10) $\log_7 (x+2) + \log_7 4 = \log_7 (6x-18)$

x = **13**