4.5: (Exponential and Logarithmic Equations)

C) one negative real number only D) one positive and one negative real number E) two positive real numbers The sum of all the solution(s) of the equation $2(4^{1-x}) - 3(2^{1-x}) = -1$ is A) $\log_2 6$ B) 3	Exponential Equations. Exponential Equations.
C) one negative real number only D) one positive and one negative real number E) two positive real numbers The sum of all the solution(s) of the equation $2(4^{1-x}) - 3(2^{1-x}) = -1$ is A) $\log_2 6$ B) 3 C) -3	Exponential
C) one negative real number only D) one positive and one negative real number E) two positive real numbers The sum of all the solution(s) of the equation $2(4^{1-x}) - 3(2^{1-x}) = -1$ is A) $\log_2 6$ B) 3 C) -3	Exponential
D) one positive and one negative real number E) two positive real numbers The sum of all the solution(s) of the equation $2(4^{1-x}) - 3(2^{1-x}) = -1$ is A) $\log_2 6$ B) 3 C) -3	Exponential
The sum of all the solution(s) of the equation $2(4^{1-x}) - 3(2^{1-x}) = -1$ is A) $\log_2 6$ B) 3 C) -3	•
A) log ₂ 6 B) 3 C) -3	•
A) log ₂ 6 B) 3 C) -3	•
B) 3 C) -3	•
C) -3	•
[·	Equations.
E) log ₂ 3	
E) 10g ₂ 3	
The sum of all solutions of the equation $(8)^x = (\sqrt{2})^{2x+4}$ is	
A) -1	
B) 3	Exponential
	Equations.
D) 1	
E) 2	
If $(\sqrt[4]{3})^{8x+12} = (e)^{3x\ln 3}$, then $x =$	
A) 3	
	Exponential Equations.
C) - 2	Lyuations.
$D)\frac{3}{2}$	
$(E)^{\frac{5}{2}}$	

If $\frac{8^x + 8^{-x}}{8^x - 8^{-x}} = 3$, then $x =$	
$A)\frac{1}{6}$	
B) ln 6	Exponential
C) ln 2	Equations.
D) 1	
(E) - 1	
$\ln a + \ln b$	
If the solution of the equation $2^{3x-2} = 5^{x+1}$ is $x = \frac{\ln a + \ln b}{\ln c - \ln b}$, then $a + b + c =$	
A) 17	
B) 13	Exponential
C) 11	Equations.
D) 15	
E) 19	
The sum of solutions of the equation $2^x - (6)2^{(-x)} - 1 = 0$ is	
A) -1	
$B) \log_3(2)$	Exponential
C) ln 3	Equations.
$D) \log_2(3)$	
E) $\ln \sqrt{3}$	
The sum of all the solutions of the equation $2 \cdot 3^x - 21 \cdot 3^{-x} + 1 = 0$ is	
A) 1	
B) 3	
$(C) - \frac{1}{2}$	Exponential
$D)\frac{9}{2}$	Equations.
$(E)\frac{1}{2}$	
L	

The sum of all solution(s) of the equation $e^x - 12e^{-x} - 1 = 0$, is	
A) ln 4 B) ln 12 C) ln 3 D) 1 + ln 2 E) -ln 12	Exponential Equations.
If $6^{x+1} = 4^{2x-1}$ then, $x =$	
A) $\frac{\log 24}{\log(8/3)}$ B) $\frac{\log 24}{\log(3/8)}$ C) $\frac{\log(3/2)}{\log(8/3)}$ D) $\frac{\log 8}{\log(1/2)}$ E) $\frac{\log 8}{\log(3/8)}$	Exponential Equations.
If $\log 2 = t$, then solving the equation $2^{x+3} = 5^x$ in terms of t , we get $x = \frac{A}{1-2t}$ B) $\frac{2t}{1-3t}$ C) $\frac{1-3t}{2t}$ D) $\frac{3t}{1+2t}$ E) $\frac{1+2t}{3t}$	Exponential Equations.

If $5^x = (3)(4^{1-x})$, then $x =$	
11.3 - (3)(4), then x =	
$A) \frac{\ln 12}{\ln 20}$	
B) $\ln\left(\frac{3}{5}\right)$	Exponential
$C)\frac{\ln 3}{\ln 5}$	Equations.
$D)\frac{\ln 6}{\ln 10}$	
$E)\frac{\ln 5}{\ln 3}$	
If the solution of the equation $2^{2x+1} = 7(2^x) + 4$ is $x = A$, then $2A - 1 =$	
A) $\frac{1}{2}$ B) 3 C) $\frac{3}{2}$ D) 0 E) 4	Exponential Equations.
 The solution set of the equation 4^x - 2^x - 12 = 0 consists of A) one positive integer only. B) one positive integer and one negative integer. C) two positive integers. D) two negative integers. E) one negative integer only. 	Exponential Equations.

The sum of all the solution(s) of the equation $4^x - 2^{x+3} + 12 = 0$ is	
A) $\log_2 12$	
B) log ₂ 6	Exponential Equations.
C) 7	
D) log ₂ 8	
E) 1	
16 2 x + 1	
If $2^{x+1} = 3^{2x-1}$, then $x =$	
$(A) \log_{9/2} 6$	
B) log _{9/2} 5	Exponential Equations.
C) log _{3/2} 6	Equations.
D) log 6	
E) log ₆ 5	
The sum of solutions of the equation $2e^{2x} - 13e^x = 15$ is:	
A) $\ln \frac{15}{2}$	
B) $\ln \frac{17}{2}$	e
	Exponential Equations.
C) $\ln \frac{13}{2}$	
D) $\ln \frac{3}{10}$	
E) $\ln \frac{7}{2}$	

If $6e^x - 15e^{-x} + 1 = 0$, then $e^{2x} =$	
A) $\frac{25}{9}$ B) $\frac{1}{4}$ C) $\frac{9}{4}$ D) $\frac{25}{4}$	Exponential Equations.
D) $\frac{25}{4}$ E) $\frac{9}{25}$	
The equation $9^x - 2(3^{x+1}) = 27$	
A) has only one positive integer solution. B) has two real solutions. C) has only one negative integer solution. D) has two nonreal solutions. E) has no solution.	Exponential Equations.
The sum of all solutions of the equation $2e^x + 6e^{-x} = 7$ is A) $\ln 3$ B) $\ln 2$ C) $\ln \frac{2}{3}$ D) $\ln \frac{3}{2}$ E) $\ln \frac{7}{2}$	Exponential Equations.

If the line $y = \frac{26}{27}$ intersects the graph of $y = -3^{x-2} + 1$ at the point (x_1, y_1) ,	
then $x_1 + y_1 =$	
A) $\frac{28}{27}$	
B) $-\frac{5}{27}$	Exponential Equations.
$(C) - \frac{23}{27}$	
$D) - \frac{7}{27}$	
$\frac{1}{E} - \frac{1}{27}$	
55	
The solution set of $(\sqrt{2})^{12x-8} = 4\left(\frac{1}{2}\right)^{5x+7}$	
A) contains exactly one negative rational number	_
B) contains exactly one negative irrational number	Exponential Equations.
C) contains exactly one positive irrational number	
D) contains exactly one positive rational number	
E) is the empty set	
$f y = A + B(1 - e^{-cx})$, then $x =$	
$A - \frac{1}{c} \ln \left(\frac{B - y + A}{B} \right)$	
$B) - \frac{1}{c} \ln \left(\frac{B + y + A}{B} \right)$	Eveneratie
$C) - \frac{1}{c} \ln \left(\frac{B - y - A}{B} \right)$	Exponential Equations.
$D) - \frac{1}{c} \ln \left(\frac{B - y + A}{A} \right)$	
$E) - \frac{1}{c} \ln \left(\frac{B + y - A}{A} \right)$	

-77	
If the solution of the equation $\frac{7^x + 7^{-x}}{7^x - 7^{-x}} = 2$ is $x = \log_b \sqrt{a}$ then $a \cdot b =$	
A) 21	
B) 34	Exponential Equations.
C) 14	
D) 9	
E) 24	
The sum of all solution(s) of the equation $e^x - 12e^{-x} - 1 = 0$, is	
A) ln 4	Evacantial
B) ln 12	Exponential Equations.
C) ln 3	
D) $1 + \ln 2$	
E) -ln 12	
The SUM of all solutions of the equation $125^{-3} = \left(\frac{1}{5}\right)^{ x+2 }$ is	
A) - 4	
B) 1	Exponential Equations.
C) 5	·
D) - 5	
E) 4	

If we have the state of the second of 125% of 53%+1	
If $x = a$ is the solution of the equation $125^x + 5^{3x+1} = 12$, then $3a =$	
A) 3	
	Exponential
B) log ₅ 2	Equations.
C) log ₅ 3	
D) 0	
E) 2	
If $e^{k-1} = \left(\frac{1}{e^4}\right)^{k+1}$, then $k =$	
A) $-3/5$	
B) 1/5	Exponential Equations.
C) 1/2	
D) -2	
E) 1/3	
The sum of all the solution(s) of $2(3^{2x-6}) - 4 = 8$ is	
A) $3 + \log_3 \sqrt{6}$	
B) $6 + \log_3 6$	Exponential
C) $3 + \log_3 36$	Equations.
D) $6 - \log_3 \sqrt{6}$	
E) $6 - \log_3 \sqrt{3}$	

The sum of all the solution(s) of $e^x - 6e^{-x} = -1$ is	
A) ln 2	
B) ln 3	Exponential
C) -ln 6	Equations.
D) 1	
E) 2	
The solution set of the equation $\log_3(x-2) = 1 + \log_{\frac{1}{3}}(x+2)$ consists of	
A) Two rational solutions.	
B) Two solutions one rational and one irrational.	Logarithmic
C) One irrational solution only.	Equations.
D) Two irrational solutions of different signs.	
E) Only one integer.	
The solution set of the equation $ln(4x - 2) - ln e^{ln 4} = -ln(x - 2)$ contains	
A) only one positive rational number	
B) only one negative rational number	Logarithmic
C) one negative and one positive rational numbers	Equations.
D) two positive rational numbers	
E) no real solution	

The equation $\ln e^{\ln x^2} - \ln(4 - x) = \ln 2$ has	
A) one negative and one positive real solution	
	Logarithmic
B) only one positive real solution	Equations.
C) only one negative real solution	
D) two negative real solutions	
E) no real solution	
The sum of all the solution(s) of the equation $ln(2x^2 - 4x + 1) = 2ln(1 - x)$ is	
A) 1	La gavith asia
B) 2	Logarithmic Equations.
C) -1	'
D) 0	
E) -2	
The solution set of the equation $\sqrt{\log_2 x} = -\log_2 \sqrt{x}$ contains	
A) one positive integer only	_
B) one positive and one negative integers	Logarithmic Equations.
C) no real numbers	Equations.
D) two positive integers	
E) one negative integer only	

If $\alpha = \log(\alpha + 1) - \log \alpha$ then $\alpha = -1$	
If $y = \log(x + 1) - \log x$, then $x =$	
A) $\frac{1}{10^{y}-1}$	
$B)\frac{1}{10^{y}+1}$	Logarithmic Equations.
C) $10^y + 1$	•
D) $10^y - 1$	
$(E)\frac{1}{e^{y}-1}$	
The sum of all the solution(s) of $log(x + 2) = 1 + log_{0.1}(x - 1)$ is	
A) -1	
B) 1	Logarithmic Equations.
C) 0	Equations.
D) -3	
E) 3	
The sum of solutions of the equation $log_2(x-1) = 2 - log_2(x+1)$ is	
A) 0	
B) 5	
C) √5	Logarithmic Equations.
D) $-\sqrt{5}$	•
E) -5	
If $x = k$ is the solution of $\log_3(\log_4(x - 36)) = 1$, then $\log k = 1$	
A) 6	
B) -1	
	Logarithmic
C) 3	Equations.
D) 2	
E) 1	

The solution set of the equation $\log_4(x+2) - 2\log_{\frac{1}{16}}(x-1) = 1$ consists of	
A) one positive integer only	
B) one negative integer only	
C) one positive irrational number only	Logarithmic Equations.
D) two integers whose sum is - 1	'
E) one negative irrational number only	
If the graph of the function $f(x) = \log_5(x - 20)$ intersects the graph of the	
function $g(x) = \log_5\left(\frac{1}{x}\right) + 3$ at the point (a, b) , then $a + b =$	
A) 26	Logarithmic Equations.
B) 25	Equations.
C) 28	
D) 21	
E) 29	
The sum of all the solutions of the equation $\frac{1}{2}\ln(3x+8) = \frac{1}{2}\ln(2x+2) +$	
$\frac{1}{4}\log_{\sqrt{e}}(x-2) \text{ is}$	
$\frac{1}{4}\log_{\sqrt{e}}(x-2)$ is	
A) 4	Logarithmic
B) $\frac{5}{2}$	Equations.
C) 3	
$D)\frac{1}{2}$	
E) 5	

The sum of all solutions of the equation $[\log_2(x+3)]^2 = 4\log_2(x+3)$ is	
A) 11	
B) 6	Logarithmic Equations.
C) 13	Equations.
D) 5	
E) 4	
The product of the solution(s) of the equation $\log_7(x-1) - \log_{1/7}(x+1) =$	
$2\log_{\sqrt{7}} 1 + \log_7(2x - 1)$ is	
A) 2	Logarithmic
B) 0	Equations.
C) 3	
D) 4	
E) 6	
The sum of all solution(s) of the equation $\log_2 \sqrt[3]{x+5} + \log_8(3x-1) = 2$ is	
A) 3	Logarithmic
B) 14	Equations.
C) 11	
D) 10	
E) -6	

The sum of all solution(s) of the equation $\log_2 \sqrt{x-2} + \log_4(x-4) =$	
$\frac{1}{2}[3 + \log_2(3)]$ is:	
A) 8	Logarithmic
B) 6	Equations.
C) 11	
D) 10	
E) -6	
The sum of all the solution(s) of the equation $\log_{(x^2+2x)} 27 = 3$ is	
A) -2	
	Logarithmic
B) -4	Equations.
C) -3	
D) 4	
E) 1	
The sum of all the solution(s) of the equation $log(5x) - log_{0.1}(x - 1) = 2$, is	
A) 5	
B) -4	Logarithmic
C) 4	Equations.
D) 1	
E) 9	

If $(\log_4 5)(\log_{25} 2x) = 1$, then $x = ?$	
If $(\log_4 3)(\log_{25} 2x) = 1$, then $x = 1$	
A) 8	
B) 6	Logarithmic
C) 4	Equations.
D) 2	
E) 10	
The sum of all the solution(s) of the equation $\log_{\sqrt{5}}(x) + \log_5(x^2 - 3) + \log_5(x^2 - 3)$	
$\log_{1/5} 4 = 0$ is	
A) 2	
B) 4	Logarithmic
C) 0	Equations.
D) 3	
E) 6	
If $\log_3(1) = -3 + \left(\frac{1}{3}\right)^{x+2}$, then $3x + 1 =$	
A) -8	Exponential
B) - 2	and
C) 0	Logarithmic Equations.
D) 3	
E) 10	

If $\log_2 y = x$, then $\left(\frac{1}{8}\right)^{1-x} =$	
$A) \frac{y^3}{8}$ $B) \frac{y^3}{2}$ $C) \frac{y}{8}$	Exponential and Logarithmic Equations.
D) 8 <i>y</i> E) 8 <i>y</i> ³	