

15) $y = 2^x$. Find the equation?

$y = -2^x + 3$

16) $\log(v) = t$

Find the exp. form of this equation. $10^t = v$.

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17) V.A. of $g(x) = \ln(2x+6) - 5$

$= \ln(2(x+3)) - 5$

$x = -3$.

18) $f(x) = \log_5\left(\frac{x}{x-1}\right)$

$\frac{x}{x-1} > 0$

$\frac{x}{x-1} > 0$

$(-\infty, 0) \cup (1, \infty)$.

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A: $\log_4(x+2)$

B: $\log_4(-x+2)$

C: $-\log_4(x+2)$

20) $\log_3\left(\frac{1}{9}\right) - 3 \log_3(3)$

$-2 - 3 = -5$

$\ln\left(\frac{x}{y}\right) = \ln x - \ln y$

$\ln(x+y) = \ln(x) + \ln(y)$

$\ln(x-y) = \ln(x-y)$

Written part

21) a) $10e^{8x+3} + 2 = 8$

$10e^{8x+3} = 6$

$e^{8x+3} = \frac{3}{5}$

$\ln e^{8x+3} = \ln \frac{3}{5}$

$8x+3 = \ln \frac{3}{5}$

$x = \frac{\ln \frac{3}{5} - 3}{8}$

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b) $10 - 4 \ln(9-8x) = 6$

$-4 \ln(9-8x) = -4$

$\ln(9-8x) = 1$

$9-8x = e^1$

$9-8x = e$

$-8x = e-9$

$x = \frac{e-9}{-8} = \frac{9-e}{8}$

c) $\ln(x^2) = \ln(2x+3)$

$\ln(9) = \ln(9)$

$x^2 = 2x+3$

$x^2 - 2x - 3 = 0$

$(x-3)(x+1) = 0$

$x = 3; x = -1$

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a) $e^x \cdot e^x - 56 = 0$

$(e^x + 7)(e^x - 8) = 0$

$e^x = 8$

$x = \ln(8)$

22) $\log_6\left(\frac{64x^3(4x+1)}{2x-1}\right)$

$= \log_6(64) + \log_6(x^3) + \log_6(4x+1) - \log_6(2x-1)$

$= 5 \log_6(2) + 3 \log_6(x) + \log_6(4x+1) - \log_6(2x-1)$

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b) $\log_2(x^2) + \left(\frac{1}{2}\right) \log_2(x-1) - 3 \log_2(x+3)$

condense

$\log_2\left(\frac{x^2 (x-1)^{\frac{1}{2}}}{(x+3)^3}\right)$

$\log_2\left(\frac{x^2 \sqrt{x-1}}{(x+3)^6}\right)$

23) $p(x) = 45 - 0.0125x$

$R(x) = x p(x)$

Find the production level which maximizes the revenue

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