Quiz Review 2.6 - 2.9

Use the properties of logarithms to rewrite each expression into lowest terms (i.e. expand the logarithms to a sum or a difference):

16. $\log 10x$

17. $\ln \frac{xy}{z}$

18. $\log_b \frac{x^4}{z^2}$

19. $\log_4 4x^2$

20. $\log_3 \sqrt{x-2}$

21. $\ln \frac{x^5 z^2}{y^3}$

22. $\ln \frac{\sqrt{3x}}{7}$

Write each expression as a single logarithmic quantity:

23. $\log 7 - \log x$

24. $3\ln x + 2\ln y - 4\ln z$

25. $\frac{3}{2}\ln x^6 - \frac{3}{4}\ln x^8$

26. $\log_2 5 + \log_2 x - \log_2 3$

27. $1 + 3\log_4 x$

28. $2\ln 8 + 5\ln x$

29. $\frac{1}{2}\log_5 7 - 2\log_5 x$

Problem 1: Solve: $4^{3x+5} = 8^{4x-3}$

Problem 2: Solve: $e^{8-3x} = 268$

Problem 3: Solve: $5^{6x+7} = 761$

Problem 4: Solve: $9^{2x+3} = \left(\frac{1}{27}\right)^{3x+1}$

Problem 5: Solve: $3^{2x-5} = 87$

Problem 6: Solve: $4e^{3x-5} = 195$

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Problem 1: Solve: $\log_5(4x+11)=2$

Problem 2: Solve: $\log_2(x+5)-\log_2(2x-1)=5$

Problem 3: Solve: $\log_8 x+\log_8(x+6)=\log_8(5x+12)$

Problem 4: Solve: $\log_6 x+\log_6(x-9)=2$

Problem 5: Solve: $\ln(6x-5)=3$

Problem 6: Solve: $\log_4(3x-2)-\log_4(4x+1)=2$

Problem 7: Solve: $\log_3(x^2-6x)=3$