AAT

HW71

P415

5. a) $4^3 = 64$ ✓

b) $4^{-3} = 64$ ×

7. a) $3e^{e^{25}} = 75$ ×

b) $3e^{\ln 25} = 75$ ✓

c) yes

15. $2^{-x} = 2^5$

$\boxed{x = -5}$

16. $4^{-x} = 4^3$

$\boxed{x = -3}$

17. $\ln x = \ln 2$

$\boxed{x = 2}$

18. $\ln x = \ln 5$

$\boxed{x = 5}$

19. $e^x = 2$

$\ln 2 = x$

$\boxed{x \approx 0.69}$

20. $\ln 4 = x$

$\boxed{x \approx 1.39}$

21. $e^{-1} = x$

$\boxed{x \approx 0.37}$

22. $10^{-2} = x$

$\boxed{\frac{1}{100} = x}$

23. $4^3 = x$

$\boxed{x = 64}$

24. $5^{1/2} = x$

$\boxed{\sqrt{5} = x}$

32. $-x^2 = x^2 - 2x$

$0 = 2x^2 - 2x$

$0 = 2x(x-1)$

$\boxed{x = 0, x = 1}$

33. $3^x = 5$

$\log_3 5 = x$

$x = \frac{\log 5}{\log 3}$

$\boxed{x \approx 1.465}$

34. $5^x = 16$

$\log_5 16 = x$

$x = \frac{\log 16}{\log 5}$

$\boxed{x \approx 1.723}$

35. $e^x = 5$

$\ln 5 = x$

$\boxed{x \approx 1.609}$

36. $e^x = 22.75$

$\ln 22.75 = x$

$\boxed{x \approx 3.125}$

37. $e^x = 28$

$x = \ln 28$

$\boxed{x \approx 3.332}$

38. $6^x = 37$

$\log_6 37 = x$

$\frac{\log 37}{\log 6} = x$

$\boxed{x \approx 2.015}$

39. $\log_3 80 = 2x$

$2x = \frac{\log 80}{\log 3}$

$2x \approx 3.989$

$\boxed{x \approx 1.994}$

→

89. $\ln 5x = 10/3$

$e^{10/3} = 5x$

$\frac{e^{10/3}}{5} = x$

$\boxed{x \approx 5.606}$

105. $2x - 3 = x + 4$

$\boxed{x = 7}$

106. $3x + 4 = x - 10$

$2x = -14$

$x = -7$

$\boxed{\text{No solution}}$