

pg. 464 # 1-9, 14-30

$$1. 3 \ln 5 = \ln 5^3 = \ln 125$$

$$14. \ln 3x = 6$$

$$e^{\ln 3x} = e^6$$

$$\frac{3x}{3} = \frac{403.4288}{3}$$

$$x = 134.4763$$

$$23. e^x = 18$$

$$\ln e^x = \ln 18$$

$$x = 2.8904$$

$$29. A = Pe^{rt}$$

$$\frac{331.07}{200} = \frac{200e^{.084t}}{200}$$

$$1.6554 = e^{.084t}$$

$$\ln 1.6554 = \ln e^{.084t}$$

$$\frac{0.5040}{.084} = \frac{.084t}{.084}$$

$$6 \text{ years} = t$$

$$30. \frac{3450}{725} = \frac{725e^{r(2)}}{725}$$

$$4.7586 = e^{2r}$$

$$\ln 4.7586 = \ln e^{2r}$$

$$\frac{1.56}{2} = \frac{2r}{2}$$

$$.78 = r$$

$$78\%$$

Answers for Lesson 8-6, pp. 464–467 Exercises

- ① $\ln 125$ ② $\ln 18$ ③ $\ln 4$
- ④ $\ln 40,960$ ⑤ $\ln \frac{1}{81}$ ⑥ $\ln 1$
- ⑦ $\ln \frac{m^5}{n^3}$ ⑧ $\ln \frac{\sqrt[3]{xy}}{z^4}$ ⑨ $\ln \frac{a\sqrt{c}}{b^2}$
10. 20.92 11. 24.13 12. 7.79 km/s; yes
13. 25 s ⑭ 134.476 ⑮ 0.135
- ⑯ 1.078×10^{15} ⑰ 1488.979 ⑱ 5.482, -3.482
- ⑲ ± 11.588 ⑳ 110.196 ㉑ ± 2.241
- ㉒ ± 0.908 ㉓ 2.890 ㉔ 1.151
- ㉕ 2.401 ㉖ 5.493 ㉗ 1.242
- ㉘ 23.752 ㉙ 6 years ㉚ 78%
31. 1 32. 2 33. 10
34. 10 35. 0 36. $\frac{1}{4}$
37. 1 38. 83 39. 10.8
40. 301 days; 26 days 41. sometimes
42. never 43. always
44. about 5.8% per hour 45. 19.8 h
46. about 40,000 bacteria 47. 3.6
48. 6.7 49. 9.4 50. 11.8
51. 13.9 52. 15.8 53. 17.5
54. 19.1 55. 542.31 56. 1
57. 0.0794 58. 81.286 59. 1.2639
60. no solution 61. 27,347.9 62. 78.342

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