Semester 2 Extra Practice #2

1. Write as a single logarithm and simplify if possible.
   a. $\log_4 60 - \log_4 4 + \log_4 x - \log_4 y$
   b. $3\log_9 x + 2$
   c. $\frac{1}{2}\log_4 32 + \log_4 \sqrt{8}$
   d. $\log_5 y - 4(\log_5 r + 2\log_5 t)$
2. Expand each logarithm and then simplify is possible.
   a. $\log_2 \frac{x^3 y}{z^2}$
   b. $\log_3 27ab^2$
   c. $\log \frac{\sqrt{x}}{100y^3}$
   d. $\log_5 7(3x-2)$
3. Evaluate. Round to nearest hundredth if necessary.
   a. $\log_{64} 8$
   b. $\log 10^2 + 4^{\log_4 6}$
   c. $\log_8 130$
   d. $\log_3 \sqrt{27} - \frac{1}{3}\log_6 36$
   e. $\log_2 \frac{1}{8} + \ln e^{10}$
4. Solve each equation. Round to the nearest hundredth if necessary.
   a. $6^x = 42$
   b. $4^{x-5} = 280$
   c. $60 - 5^{x+6} = 14$
   d. $2\log x = 2$
   e. $\log_2 (x+2) - \log_2 x = 4$
   f. $\log_4 (2x+6) = 3$
   g. $2\log_{11} x = \log_{11}(5x+6)$
   h. $4\log_3 x - 10 = 6$
   i. $2\log_7 x + \log_7 6 = \log_7 (2-x)$
5. The value of a $1,573 computer depreciates at a rate of 17% each year. What is the value of the computer after 4 years?
6. Brandon invests $1200 in an account that pays 4.25% interest compounded quarterly. What is the amount of his investment after 7 years?

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1. a) $\log_4 \frac{15x}{y}$
   b) $\log_9 81x^3$
   c) 2
   d) $\log_5 \frac{y}{r^4 t^8}$

2. a) $3\log_2 x + \log_2 y - 2\log_2 z$
   b) $3 + \log_3 a + 2\log_3 b$
   c) $\frac{1}{2}\log x - 2 - 3\log y$
   d) $\log_5 7 + \log_5 (3x - 2)$

3. a) $\frac{1}{2}$
   b) 8
   c) 2.34
   d) $\frac{5}{6}$
   e) 7

4. a) 2.09
   b) 9.06
   c) -3.62
   d) 10
   e) 0.13
   f) 29
   g) 6
   h) 81
   i) $\frac{1}{2}$

5. a) \$746.52
   b) \$1613.25

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