Exam 3 on M4

Instruction: I studied module 4 and promise to follow all of these instructions for this exam.

1. $(a^m)^n = a^{mn}$ $\qquad$ $a^m \cdot a^n = a^{m+n}$ $\qquad$ $\frac{a^m}{a^n} = a^{m-n}$

2.

Company A	Company B
Starting salary: $65,000	Starting salary: $55,000
yearly raise: $2100	yearly raise: 4.4%
equation: 55,000 + 2100t	equation: 55,000 $(1 + 0.044)^t$

3. Invest → 6.4% APR compounded weekly
   wants $12,000 after 4 years

7. $1000 in 10 years

a) #1   14% interest each year

$\;\; \rightarrow 1,000(1.14)^t$

$\;\;\; \rightarrow 1,000(1.14)^{10}$

$\;\;\; \rightarrow 3707.2213$

b) #2   13.5% interest per year compounded monthly

$\# = 4 \left(1 + \frac{r}{n}\right)^{nt}$

$\;\; \rightarrow 1000 \left(1 + \frac{13.5}{12}\right)^{12t}$

$\;\; \rightarrow 1000(1 + 0.0125)^{120}$

c) #3   13% interest per year, compounded weekly

$1000 \left(1 + \frac{0.13}{52}\right)^{52}$

$\;\; \rightarrow 1000(1.0025)^{520}$

6. $\log_2(20x^2)$ $\qquad\qquad$ Product Property

a) $\log_2(2x) + \log_2(10x) \rightarrow \log_2(20x^2)$ $\qquad$ $\log_b(x) + \log_b(y) = \log_b(xy)$

b) $\log_2(x^2) \log_2(20) \rightarrow$

c) $\log_2(20) + \log_2(x^2) \rightarrow \log_2(20x^2)$

d) $\log_2(2) + \log_2(10x^2) \rightarrow \log_2(20x^2)$

e) $\log_2(x^2) + 20 \rightarrow$

f) $\log_2(2x^2) + \log_2(10) \rightarrow \log_2(20x^2)$

8. Gregory's body → 12.5% per hour

$\qquad$ a. 98 in 1/2 $\qquad\qquad\qquad$ 100 - 12.5

$\qquad\qquad$ $\log(1/2) / \log(0.875)$

9. $(0, 2.6)$ $(1, 4.68)$ $\qquad\qquad\qquad$ $(0, 2341)$ $(1, 1755.75)$

	0	1	1.8
	26	4.68	

	0	1	0.75
	2341	1755.75	

10. $(1, 14)$ $(2, 24.5)$

	1	2	1.75
	14	24.5	

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