

# Attendance check in #16

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Exercise 1:  $\log_a 5 = 2.322$  |  $\log_a 3 = 1.585$

(a)  $\log_a 15 \rightarrow \log_a(3)(5) \rightarrow \log_a(3) + \log_a(5)$   
 $\downarrow$   
 $1.585 + 2.322$

(b)  $\log_a \frac{5}{9} \rightarrow \log_a 5 - \log_a 9$   
 $= \log_a 5 - \log_a(3 \cdot 3)$   
 $= \log_a 5 - (\log_a 3 + \log_a 3)$   
 $= 2.322 - (1.585 + 1.585)$

Exercise 2:  $A(t) = P(1 + \frac{r}{n})^{nt}$

$P = 4000$

$r = 2.8\% \rightarrow 0.028$

$n = 12$  (monthly)

$t = 5$  yrs

$A(t) = 4000(1 + \frac{0.028}{12})^{12 \cdot 5}$

Account will

$\approx 41600.34$

Exercise 3:  $N(t) = -765 + 482 \ln t$   $N = 45$

$N(45) = -765 + 482 \ln(45) = 1070$  locations

$N'(t) = 0 + 482(\frac{1}{t})$

$N'(45) = \frac{482}{45} \approx 10.71 \approx 11$  locations/yr

In 2025, 1081 locations are expected to be the final total.  
 $\rightarrow 1070 + 11 = 1081$