

Quiz 9

The number of soldiers at Fort MacArthur who contracted the flu after t days during an epidemic is approximated by the exponential model

$$Q(t) = \frac{4000}{1 + 1249e^{-kt}}.$$

If 40 soldiers contracted the flu by the seventh day, find the number of soldiers who had contracted the flu by the fifteenth day.

Solution. Solve the equation

$$Q(7) = \frac{4000}{1 + 1249e^{-k7}} = 40$$

for k to get $k = 0.36214$. Then $Q(15) = 618.9$.