

Exercise 5.3.113 The function $D(h) = 5e^{-0.4h}$ can be used to find the number of milligrams D of a certain drug that is in a patient's bloodstream h hours after the drug has been administered. How many milligrams will be present after 1 hour? After 6 hours?

Solution

After 1 hour, we have $h = 1$ and so the number of milligrams present is

$$D(1) = 5e^{-0.4(1)} = 5e^{-0.4} \approx 5(0.670)$$

$$\approx \boxed{3.352 \text{ mg}}$$

After 6 hours, we have $h = 6$ and so the number of milligrams present is

$$D(6) = 5e^{-0.4(6)} = 5e^{-2.4} \approx 5(0.0907)$$

$$\approx \boxed{0.454 \text{ mg}}$$

□