Draculas dinner

Count Dracula is hungry and decides to go out for dinner on Friday, February 13, 1897. His dinner (victim, Lucy) consisted of 1.0 L of human blood (the average amount of blood in a normal adult is about 5 L), which left his victim feeling kind of empty. Fortunately for her, the human body replaces 3.00×10^{13} red blood cells (RBC) every 28 days. At a recent blood test the victim had a count of 8.0×10^{4}RBC in a blood sample volume of 100. μm X 100. μm and 0.10 mm thick. Calculate how many red blood cells did the Count drink and how many days (and hours) will Lucy need to regenerate new cells (if she lives, wohahahah (scary laugh)). Answering the following questions will help.

1-What is the date of Dracula's dinner?

2-How much blood did he drink?

3-How many blood cells are generated every 28 days? Write the equality for this.

4-What was the volume of the blood sample?

5-How many blood cells were in this sample?

6-Using the volume of the blood sample (4) and the number of cells in the sample(5), calculate how many cells are in the dinner volume.

7-Using the answer from 6, calculate the number of days and then hours Lucy needs to re-generate her blood cells.

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1-What is the date of Dracula's dinner?	February 13, 1897
2-How much blood did he drink? *From the reading*	1.0L
3-How many blood cells are generated every 28 days? Write the equality for this. *From the reading*	There are 3×10^{13} RBC = 28 days
4-What was the volume of the blood sample in cm^3 and the liter (L)? $$100.\ \mu m \times \frac{10^{-6} m}{1 \mu m} \times \frac{100 cm}{1m} = 0.0100 cm$$ $$0.10 mm \times \frac{10^{3-} m}{1mm} \times \frac{100 cm}{1m} = 0.010 cm$$ $$V_{sample} = L \times W \times H = \left(0.0100 cm\right)^2 \left(0.010 cm\right) = 1.0 \times 10^{6-} cm^3$$ $$1.0 \times 10^{6-} cm^3 \times \frac{1L}{1000 cm^3} = 1.0 \times 10^{9-} L$$	$1.0 \times 10^{-6} cm^3$ $1.0 \times 10^{-9} L$ The sample size is $1.0 \times 10^{-6} cm^3$ which is the same as $1.0 \times 10^{-9} L$
5-How many blood cells were in this sample? *From the reading.*	There are 8.0×10^4 RBC in a $1.0 \times 10^{-6} cm^3$ sample
6-Using the volume of the blood sample (4) and the number of cells in the sample (5), calculate how many cells are in the dinner volume. $$1.0 L \times \frac{8.0 \times 10^4 RBC}{1.0 \times 10^{9-} L} = 8.0 \times 10^{13} RBC$$	8.0×10^{13} RBC
7-Using the answer from 6, calculate the number of days and then hours Lucy needs to re-generate her blood cells.	74.6 days; rounded to correct significant figures, 75 days 1790.4 hours; rounded to correct significant figures, 1.8×10^3 hours