

Knowing an IV flow rate is important to make sure that the right amount of drug is being administered to the patient. The following formula helps to calculate the IV flow rate:

$$\text{Volume (mL) / time (min) * Drop factor (gtts/mL) = Flow Rate (gtts/min)}$$

(The abbreviation "gtts" means "drops")

a. 1200 mL of a drug solution is to be administered to a patient through an IV. The drug is to be infused in 8 hours. The infusion set is set for a drop factor of 10 gtts/mL. What is the flow rate?

$$1200/480 * 10 = 25 \text{gtts/min flow rate}$$

b, If the full 1200 mL of the drug solution is administered over the full 8 hours, how many mL of the solution should the patient receive per hour?

$$1200/8 = 150 \text{ mL/hr}$$

c. If the IV has been running for 50 minutes, how many drops have come from the IV? (Use your answer in part (a) to help you calculate it. Remember that gtts means "drops")

$$25 * 50 = 1250 \text{ gtts}$$

d. The nurse worries that the old equipment at the hospital isn't running exactly as planned. They check on the patient after 3 hours and find that there is 780 mL of solution left. Is the IV working as expected? Why or why not?

$$180 \text{ min (3 hours) * 25 gtts/min} = 4500 \text{ gtts}$$

$$450 \text{mL/3 hours ... } 1200 \text{ml (total over 8 hours) - } 450 \text{mL (for 3 hours)} = 750 \text{mL left for 5 hours}$$

$$1200 - 780 / 3 = 140$$

At 150 mL/hr, after 3 hours there should be 750 mL left for the next 5 hours, which there is so the machine seems to be working properly.