Solutions for Sample Medication Administration Math Problems

1) A patient weighs 220lbs. they need to be given 2mg/kg, you have the medication in 50mg/10ml. How many ml of medication does the patient need?

$$220 \text{ lbs.} \times \left( \frac{1 \text{ kg of body weight}}{2.2 \text{ lbs.}} \right) \times \left( \frac{2 \text{ mg medication}}{1 \text{ kg of body weight}} \right) \times \left( \frac{10 \text{ mL of solution}}{50 \text{ mg medication}} \right) = 40 \text{ mL}$$

2) A patient weighs 330lbs. they need to be given 4mg/kg, you have the medication in 25 mg tablet form. How many tablets of the medication does the patient need?

$$330 \text{ lbs.} \times \left( \frac{1 \text{ kg of body weight}}{2.2 \text{ lbs.}} \right) \times \left( \frac{4 \text{ mg medication}}{1 \text{ kg of body weight}} \right) \times \left( \frac{1 \text{ tablet}}{25 \text{ mg medication}} \right) = 24 \text{ tablets}$$

3) You need to infuse 25 ml in 10 minutes per infusion pump. What should the rate be set at in ml/hr?

$$\frac{25 \text{ mL}}{10 \text{ min}} \times \left( \frac{60 \text{ min}}{1 \text{ hr}} \right) = 150 \text{ mL/hr}$$

4) A patient weighs 110lbs. they need to be given 5mg/kg, you have the medication in 125mg/10ml. How many ml of medication does the patient need?

$$110 \text{ lbs.} \times \left( \frac{1 \text{ kg of body weight}}{2.2 \text{ lbs.}} \right) \times \left( \frac{5 \text{ mg medication}}{1 \text{ kg of body weight}} \right) \times \left( \frac{10 \text{ mL of solution}}{125 \text{ mg medication}} \right) = 20 \text{ mL}$$
5) You need to give 60mg/kg of medication to a patient weighing 330lbs. The medication you have is 50 grains per caplet. How many Caplets must be given to the patient?

\[
330 \text{ lbs.} \times \left( \frac{1 \text{ kg of body weight}}{2.2 \text{ lbs.}} \right) \times \left( \frac{60 \text{ mg medication}}{1 \text{ kg of body weight}} \right) \times \left( \frac{1 \text{ grain medication}}{60 \text{ mg medication}} \right) \\
\times \left( \frac{1 \text{ caplet}}{50 \text{ grains}} \right) = 3 \text{ caplets}
\]

6) At what rate should you set the infusion pump, if you need to give 8 grams/hr per infusion pump and you have 80 grams in 100 ml on hand?

\[
\frac{8 \text{ grams}}{1 \text{ hr}} \times \left( \frac{100 \text{ mL}}{80 \text{ grams}} \right) = 10 \frac{\text{mL}}{\text{hr}}
\]

7) You need to give 120mg/kg of medication to a patient weighing 110lbs. The medication you have is 20 grains per caplet. How many Caplets must be given to the patient?

\[
110 \text{ lbs.} \times \left( \frac{1 \text{ kg of body weight}}{2.2 \text{ lbs.}} \right) \times \left( \frac{120 \text{ mg medication}}{1 \text{ kg of body weight}} \right) \times \left( \frac{1 \text{ grain medication}}{60 \text{ mg medication}} \right) \\
\times \left( \frac{1 \text{ caplet}}{20 \text{ grains}} \right) = 5 \text{ caplets}
\]

8) A medication is 40 grams in 200 ml, and the medication is running at 25 ml/hr. What is the drug rate per hr?

\[
\frac{25 \text{ mL}}{1 \text{ hr}} \times \left( \frac{40 \text{ grams}}{200 \text{ mL}} \right) = 5 \frac{\text{grams}}{\text{hr}}
\]

9) How many gtt/min are needed, if 600 ml must be infused in an hour at a drip factor of 60?

\[
\frac{600 \text{ mL}}{1 \text{ hr}} \times \left( \frac{60 \text{ gtt}}{1 \text{ mL}} \right) \times \left( \frac{1 \text{ hr}}{60 \text{ min}} \right) = 600 \frac{\text{gtt}}{\text{min}}
\]
10) Using a drip factor of 15 to deliver 400 ml in 2 hours. How many gtt/min are needed?

\[
\frac{400 \text{ mL}}{2 \text{ hr}} \times \left( \frac{15 \text{ gtt}}{1 \text{ mL}} \right) \times \left( \frac{1 \text{ hr}}{60 \text{ min}} \right) = 50 \text{ gtt/min}
\]

11) You need to infuse 50 ml in 30 minutes per infusion pump. What should the rate be set at in ml/hr?

\[
\frac{50 \text{ mL}}{30 \text{ min}} \times \left( \frac{60 \text{ min}}{1 \text{ hr}} \right) = 100 \text{ mL/hr}
\]

12) A patient weighs 165 lbs. they need to be given 2mg/kg, you have the medication in 50 mg tablet form. How many tablets of the medication does the patient need?

\[
165 \text{ lbs.} \times \left( \frac{1 \text{ kg of body weight}}{2.2 \text{ lbs.}} \right) \times \left( \frac{2 \text{ mg medication}}{1 \text{ kg of body weight}} \right) \times \left( \frac{1 \text{ tablet}}{50 \text{ mg medication}} \right) = 3 \text{ tablets}
\]

13) At what rate should you set the infusion pump, if you need to give 10 grams/hr per infusion pump and you have 50 grams in 100 ml on hand?

\[
\frac{10 \text{ grams}}{1 \text{ hr}} \times \left( \frac{100 \text{ mL}}{50 \text{ grams}} \right) = 20 \text{ mL/hr}
\]

14) Using a drip factor of 10 to deliver 600 ml in 4 hours. How many gtt/min are needed?

\[
\frac{600 \text{ mL}}{4 \text{ hr}} \times \left( \frac{10 \text{ gtt}}{1 \text{ mL}} \right) \times \left( \frac{1 \text{ hr}}{60 \text{ min}} \right) = 25 \text{ gtt/min}
\]

15) A medication is 25 grams in 100 ml, and the medication is running at 100 ml/hr. What is the drug rate per hr?

\[
\frac{100 \text{ mL}}{1 \text{ hr}} \times \left( \frac{25 \text{ grams}}{100 \text{ mL}} \right) = 25 \text{ grams/hr}
\]
16) A patient weighs 440 lbs. they need to be given 5 mg/kg, you have the medication in 100mg/10ml. How many ml of medication does the patient need?

\[
440 \text{ lbs.} \times \left(\frac{1 \text{ kg of body weight}}{2.2 \text{ lbs.}}\right) \times \left(\frac{5 \text{ mg medication}}{1 \text{ kg of body weight}}\right) \times \left(\frac{10 \text{ mL}}{100 \text{ mg medication}}\right) = 100 \text{ mL}
\]

17) A patient weighs 55 lbs. they need to be given 3mg/kg, you have the medication in 25 mg tablet form. How many tablets of the medication does the patient need?

\[
55 \text{ lbs.} \times \left(\frac{1 \text{ kg of body weight}}{2.2 \text{ lbs.}}\right) \times \left(\frac{3 \text{ mg medication}}{1 \text{ kg of body weight}}\right) \times \left(\frac{1 \text{ tablet}}{25 \text{ mg medication}}\right) = 3 \text{ tablets}
\]

18) Using a drip factor of 60 to deliver 360 ml in an hour. What gtt/min is needed?

\[
\frac{360 \text{ mL}}{1 \text{ hr}} \times \left(\frac{60 \text{ gtt}}{1 \text{ mL}}\right) \times \left(\frac{1 \text{ hr}}{60 \text{ min}}\right) = 360 \text{ gtt/min}
\]

19) You need to infuse 100 ml in 20 minutes per infusion pump. What should the rate be set at in ml/hr?

\[
\frac{100 \text{ mL}}{20\text{min}} \times \left(\frac{60 \text{ min}}{1 \text{ hr}}\right) = 300 \frac{\text{mL}}{\text{hr}}
\]

20) You need to give 60mg/kg of medication to a patient weighing 55 lbs. the medication you have is 25 grains per caplet. How many Caplets must be given to the patient?

\[
55 \text{ lbs.} \times \left(\frac{1 \text{ kg of body weight}}{2.2 \text{ lbs.}}\right) \times \left(\frac{60 \text{ mg medication}}{1 \text{ kg of body weight}}\right) \times \left(\frac{1 \text{ grain}}{60 \text{ mg medication}}\right) \times \left(\frac{1 \text{ caplet}}{25 \text{ grains}}\right) = 1 \text{ caplet}
\]