IM 7 Math Module

(1.) $\frac{(50\,mL/hr) \times 15\,gtt}{45\,mins} = \frac{750}{45\,mins} = 16.6 \rightarrow$ **17 gtt/min**

(2) $1000\,mL/8\,hrs =$ **125 mL/hr**

(3) $\frac{(250\,mL/hr)(15\,gtt)}{180\,min} = \frac{3,750}{180} = 20.8 \rightarrow$ **21 gtt/min**

(4) $\frac{(50\,mL/hr) \times (60\,gtt)}{30\,mins} =$ **100 gtt/min**

(?) (5) $\frac{(250\,mL/hr) \times (15\,gtt)}{60\,min} = 62.5\,gtt/min \rightarrow$ **63 gtt/min?**

(6) D: 75 mcg

H: 100 mcg → 50 mcg

V: 2 mL → 1 mL

X: ?

$\frac{(75\,mcg)(1\,mL)}{(50\,mcg)} =$ **1.5 mL**

(7) $1000\,mL/4\,hrs =$ **250 mL/hr**

(8) D: 5 mg

H: 20 mg → 4 mg

V: 5 mL → 1 mL

X: ?

$\frac{(5\,mg)(1\,mL)}{(4\,mg)} =$ **1.25 mL**

(9) D: 2mg $\frac{(2\,mg)(1\,mL)}{(10\,mg)} = \boxed{0.2\,mL}$
H: 10mg
V: mL
X: ?

? (10) $\frac{(100\,mL)\,X\,(60\,gtt)}{480\,mins} = 12.5 \rightarrow \boxed{13\,gtt/min}$

(11) 50mg/500mL = 0.1mg/mL (175 lbs)
↓ ↓
100 mcg/mL 79.5 Kg

? (100 mcg)(79.5 Kg)(min) = 7,950 mcg/min

100mcg/mL X 142mL/hr = 14,200mcg
≈ 77
(Concentration) (Rate)

PowerPoint: $\frac{(100\,mcg/mL) \times (142\,mL/hr)}{(79.5\,kg)\,(60\,mins/hr)} = \frac{14,200}{4,770} = 2.97 \rightarrow \boxed{3\,mcg/kg/min}$

? → Class: (100mcg)(79.5Kg)(60 min) = 477,000 mcg/hr.

on hand → 50mg/500mL = 100mcg/mL

D: 477,000 mcg
H: 100 mcg
V: 1mL
X: ?

Rate
$\frac{(477,000\,mcg)(1\,mL)}{100\,mcg} = 4,770\,mL/hr$?

rate?

(12) $1\ mcg/kg/min \overset{70}{\cdot} \overset{60}{\cdot} = 4{,}200\ mcg/hr$

On hand $\frac{250\ mg}{500\ mL} = 0.5\ mg/mL$ (concentration)

D: 4,200 mcg/hr

H: 0.5 mg → 500 mcg

V: 1 mL

X: ?

$\frac{(4{,}200\ mcg)(1\ mL)}{(500\ mcg)} = 8.4 \rightarrow$ **8 mL/hr**

(13.) D: ? 4,800 mcg/hr → **80 mcg/min**

H: 100 mg → 0.4 mg → 400 mcg

V: 250 mL → 1 mL

X: 12 mL/hr

$\frac{4{,}800\ mcg(1\ mL)}{400\ mcg} = 12\ mL/hr$

(14) D: 500 units/hr

H: 25,000 units → 100 units

V: 250 mL → 1 mL

$\frac{(500\ units)(1\ mL)}{100\ units} =$ **5 mL/hr**

(15) ? $2\ mcg/kg/min \overset{75}{\cdot} \overset{60}{\cdot} =$ Dose $9000\ mcg$

D: 9000 mcg

H: 800 mg → 1.6 mg → 1600 mcg

V: 500 mL → 1 mL

$\frac{(9000\ mcg)(1\ mL)}{1600\ mcg} = 5.6$

↓

6 mL/hr

(16) 4 mcg/75 kg/60 min = 18,000 mcg/hr

D: 18,000 mcg

H: 1600 mcg

V: 1 mL

$\frac{(18{,}000\ \text{mcg})(1\ \text{mL})}{1600\ \text{mcg}} = 11.25 \rightarrow \boxed{11.3\ \text{mL/hr}}$

(17) D: 5 units

H: 100 units → 0.4 units

V: 250 mL → 1 mL

x:

$\frac{(5\ \text{units})(1\ \text{mL})}{0.4\ \text{units}} = 12.5 \rightarrow \boxed{13\ \text{units/hr}}$

(18) D: ? 28,000 mcg

H: 400 mg → 0.8 mg → 800 mcg

V: 300 mL → 1 mL

x: 35 mL/hr

$\frac{28{,}000\ \text{mcg}\ (1\ \text{mL})}{800\ \text{mcg}} = 35\ \text{mL/hr}$

$\boxed{(7.5\ \text{mcg})}(62\ \text{kg})(60\ \text{min}) = 28{,}000\ \text{mcg}$

(19) $\frac{(50\ \text{mL})(15\ \text{gtt})}{30\ \text{min}} = \frac{750}{30} = \boxed{25\ \text{gtt/min}}$

(20) $\frac{(100\ \text{mL})(12\ \text{gtt})}{60\ \text{min}} = \frac{1{,}200}{60} = \boxed{20\ \text{gtt/min}}$