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Quiz 1

Key

Show *all* your work. No credit is given without reasonable supporting work. There are *two* sides to this quiz.

1. [3] (§A.3 #58 & Fraction Wks #1) Simplify the following

$$\frac{2-\frac{2}{x}}{1+x}$$

$\times \frac{x}{x}$ $\quad 2\cdot 1 - \frac{2}{x}$ add fract (+.5) $\quad \frac{\frac{4}{x-5}}{\frac{x}{(x-5)^3}}$

$\frac{2x-2}{x}$ div fraction (+.5)

$1+x$ simplify (+.5)

$$= \frac{4}{x-5} \div \frac{x}{(x-5)^3}$$ div func (+.5) cancel (+.5) start (+.5)

$$= \frac{4}{x-5} \cdot \frac{(x-5)^3}{x}$$

$$= \frac{4(x-5)^2}{x}$$

$$\frac{\frac{2x}{x}-\frac{2}{x}}{1+x} = \frac{2x-2}{x} \div \frac{1+x}{1}$$

$$= \frac{2x-2}{x} \cdot \frac{1}{x+1} = \frac{2x-2}{x(x+1)}$$

2. [2] (WebHW1 #9) Perform

$$\frac{x}{x^2-9x+8} - \frac{2}{2x-16}$$

(+1) common den

(1.5) legal alg

$$\frac{2x}{2(x-8)(x-1)} - \frac{2(x-1)}{2(x-8)(x-1)}$$

$$\frac{2x-2(x-1)}{2(x-8)(x-1)} \text{ or } \frac{2x-2x+2}{2(x-8)(x-1)}$$

(+.5) gcf

or $\frac{2}{2(x-8)(x-1)}$ or $\frac{1}{(x-8)(x-1)}$

3. [2] (Dimensional Wks#2) You have a syringe with 150 mg of adenosine in 50 mL of solution. The MD has ordered a dose of .1 mg/kg for a 30kg pediatric patient. How many mL should you administer?

? mL

show units (+.5) show canceling (+.5)

$$\frac{50\text{mL}}{150\text{ mg adenosine}} \cdot \frac{.1\text{ mg adenosine}}{1\text{ kg}} \cdot 30\text{kg} = 1\text{mL} \quad (+1)$$

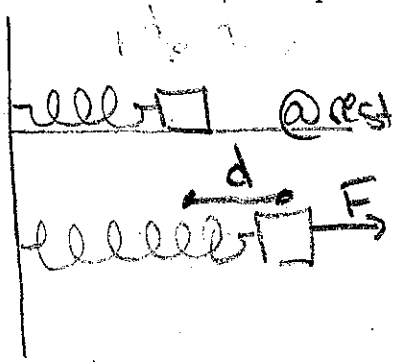
or

(+.5) (for a 30kg patient we'll need $\frac{.1\text{mg}}{\text{kg}} \cdot 30\text{kg}$ or 3mg

(+1) (we need to know how many mL so that $\frac{?\text{mL}}{3\text{mg}} = \frac{50\text{mL}}{150\text{mg}}$

$$\frac{?}{3} = \frac{50}{150} \Rightarrow ? = \frac{50 \cdot 3}{150} = \frac{150}{150} \text{ or } 1\text{mL} \quad (+1.5)$$

4. [3] (WebHW2 #7) The distance that a spring will stretch varies directly as the force applied to the spring. A force of 60 pounds is needed to stretch a spring 6 inches. What force is required to stretch the spring 10 inches?



$d = KF$ (+1)

d = distance
F = Force

note if F = 60 lbs
d = 6 inches
} find K (+1)

$$\frac{6}{60} = \frac{K \cdot 60}{60}$$

$$\frac{1}{10} = K$$

what is F if d = 10

$10 = (\frac{1}{10})F$ (+.5) plug in d=10

$100 = F$

notation/alg (+.5)