Serial #: _____ ID _____ NAME _____

Show all necessary steps for full marks.

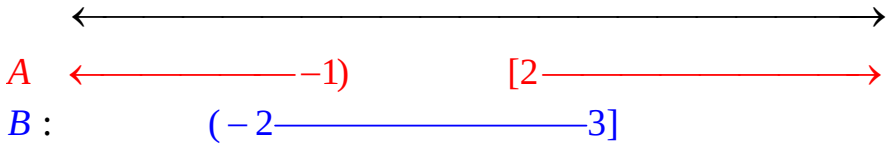
Question 1: (5 points) (P.2 Exercise 30): $\dfrac{\frac{2}{5}+\frac{1}{2}}{\frac{1}{10}+\frac{3}{15}}=?$

Solution: $\dfrac{\frac{2}{5}+\frac{1}{2}}{\frac{1}{10}+\frac{3}{15}}=\dfrac{\frac{2}{5}+\frac{1}{2}}{\frac{1}{10}+\frac{1}{5}}=\dfrac{\left(\frac{2}{5}+\frac{1}{2}\right)10}{\left(\frac{1}{10}+\frac{1}{5}\right)10}=\dfrac{4+5}{1+2}=\dfrac{9}{3}=3$

Another Method: $\dfrac{\frac{2}{5}+\frac{1}{2}}{\frac{1}{10}+\frac{3}{15}}=\dfrac{\frac{4+5}{5(2)}}{\frac{1}{10}+\frac{1}{5}}=\dfrac{\frac{9}{5(2)}}{\frac{1+2}{10}}=\dfrac{9}{5(2)}\cdot\dfrac{10}{3}=3$

Question 2: (5 points): If $A=(-\infty,-1)\cup[2,\infty)$ and $B=(-2,3]$, then find $A\cap B=?$.

Solution:



Answer: $A\cap B=(-2,-1)\cup[2,3]$

Question 3: (5 points): If $-3<x<-2$, then write the expression $\left|\dfrac{7-x}{|x|-|2x+4|}\right|$ without absolute value symbols.

Solution:

$$\left|\frac{7-x}{|x|-|2x+4|}\right|=\left|\frac{7-x}{-x-\left[-(2x+4)\right]}\right|=\left|\frac{7-x}{x+4}\right|=\frac{|7-x|}{|x+4|}=\frac{7-x}{x+4}$$

Question 4: (5 points): Write the number $\dfrac{(0.021\times10^{-5})(160\times10^{-3})}{(0.004\times10^{7})(700\times10^{-6})}$ in scientific notation.

Solution:

$$\frac{(0.021\times10^{-5})(160\times10^{-3})}{(0.004\times10^{7})(700\times10^{-6})}=\frac{(21\times10^{-3}\times10^{-5})(16\times10^{-2})}{(4\times10^{-3}\times10^{7})(7\times10^{-4})}=\frac{21(16)\times10^{-10}}{4(7)}$$

$$=12\times10^{-10}$$

$$=1.2\times10^{-9}$$