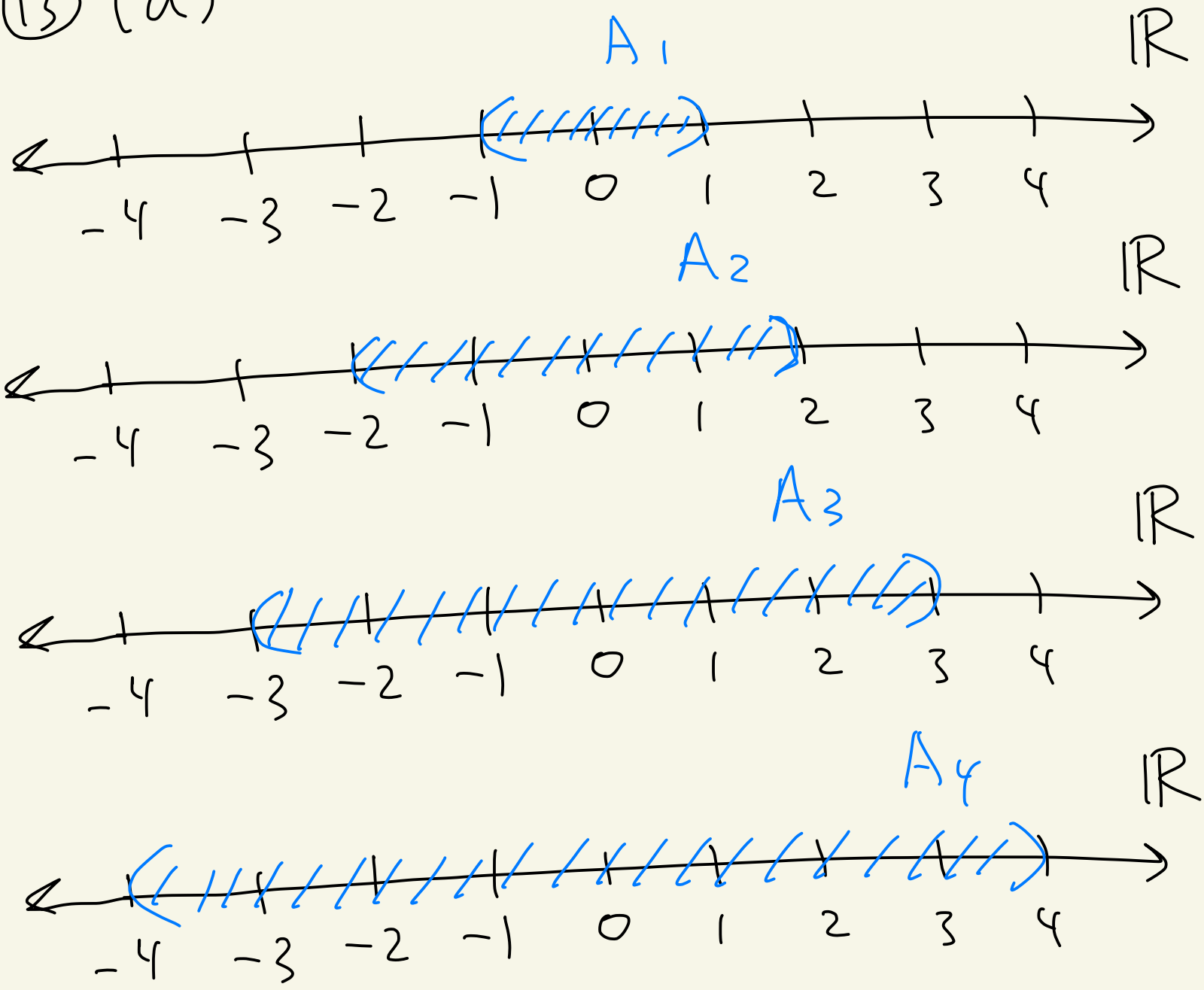
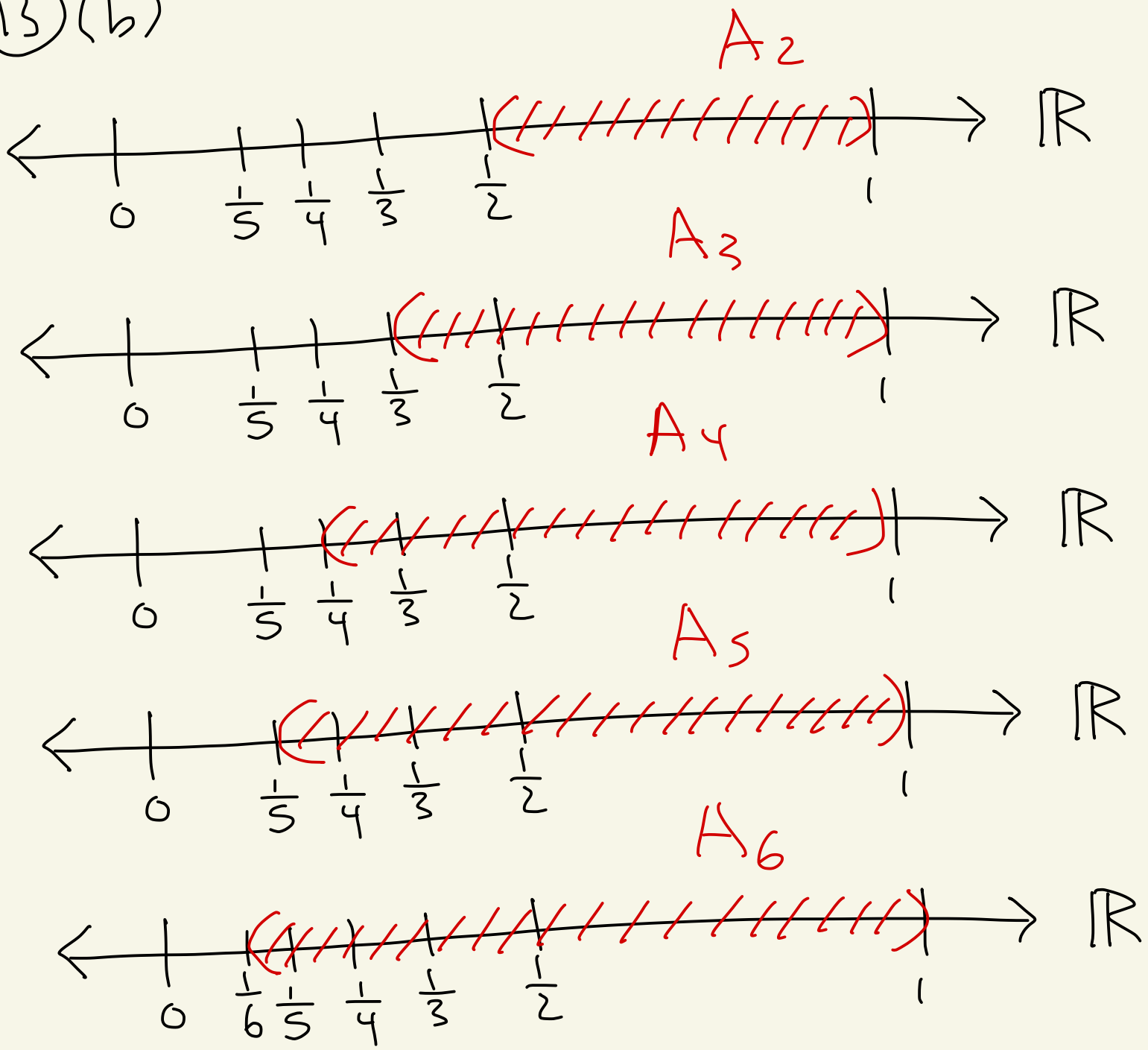
(13) (a)



$$\bigcap_{n=1}^{\infty} A_n = (-1,1) = A_1$$

$$\bigcup_{n=1}^{\infty} A_n = \mathbb{R}$$

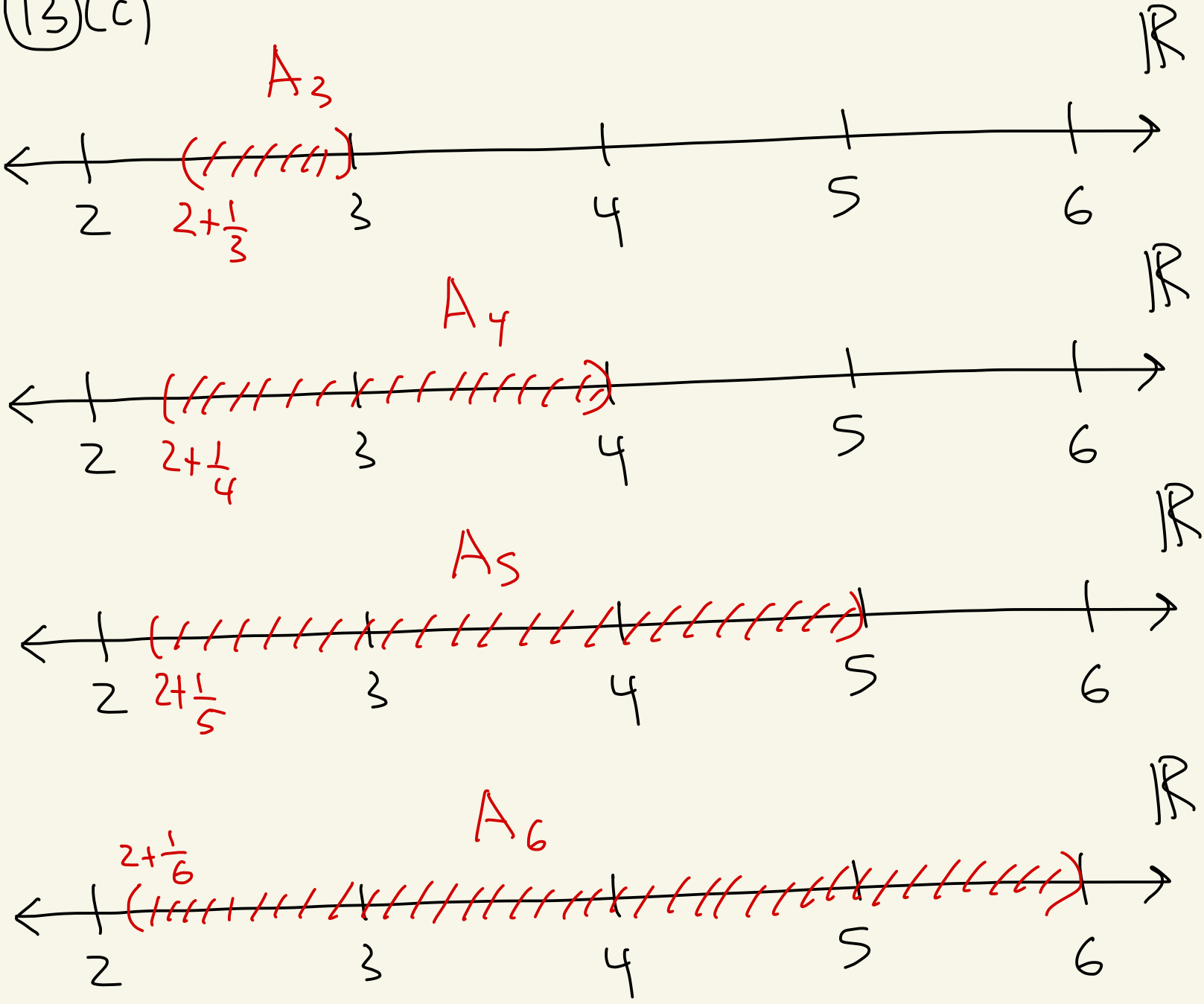
(13)(b)



$$\bigcap_{n=2}^{\infty} A_n = \left(\frac{1}{2}, 1\right) = A_2$$

$$\bigcup_{n=2}^{\infty} A_n = (0, 1)$$

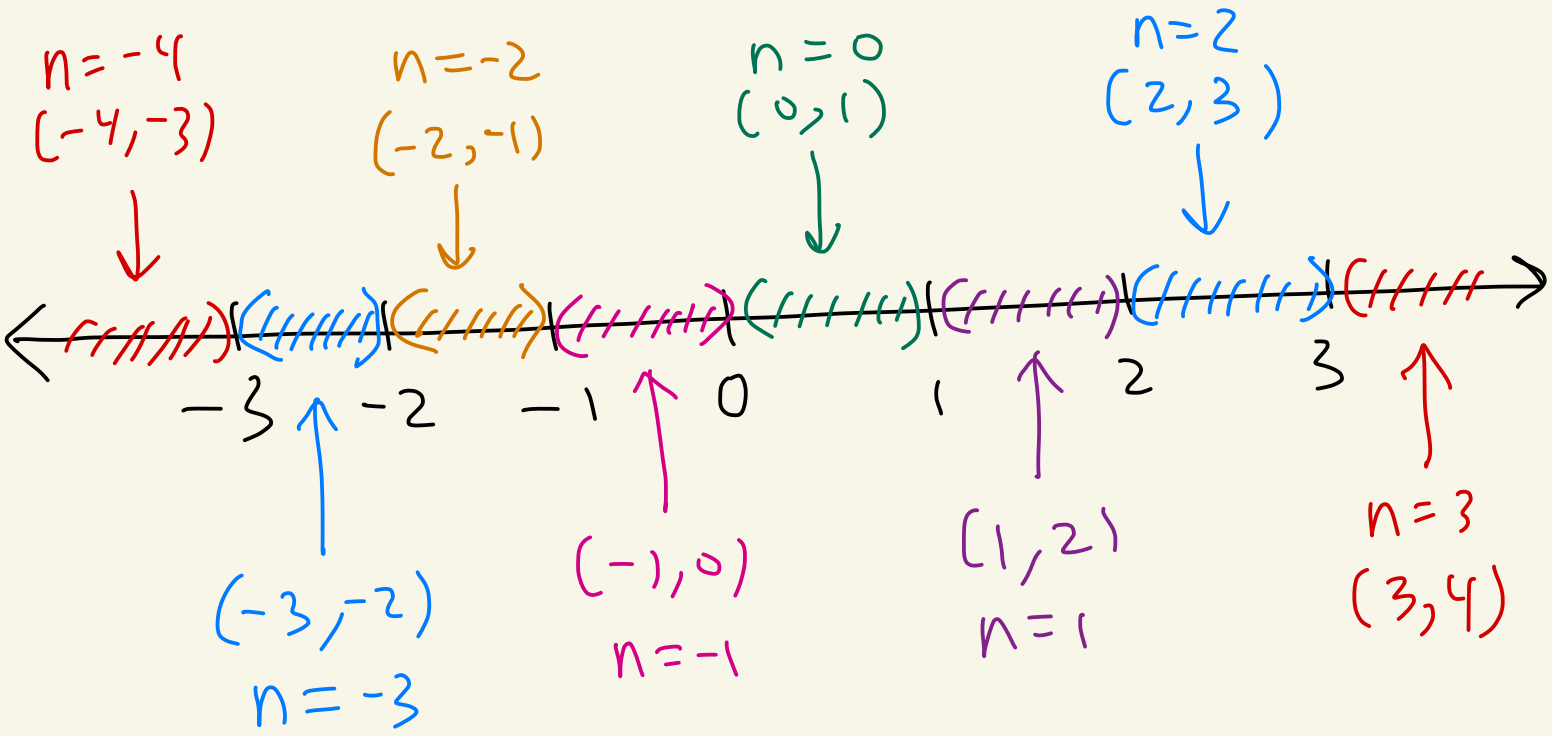
(13)(c)



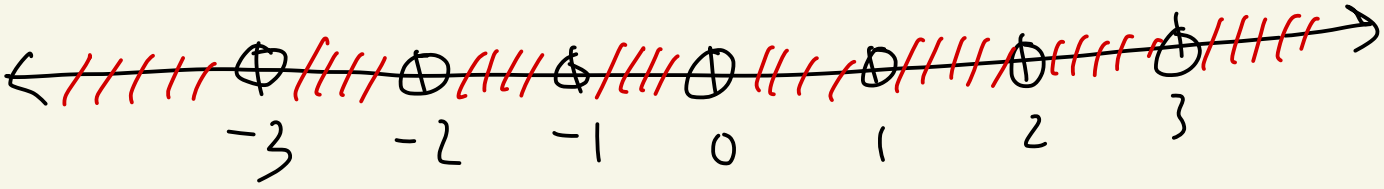
$$\bigcap_{n=3}^{\infty} A_n = \left(2+\frac{1}{3}, 3\right) = \left(\frac{7}{3}, 3\right) = A_3$$

$$\bigcup_{n=3}^{\infty} A_n = (2, \infty)$$

(13) (d)



$$\bigcup_{n \in \mathbb{Z}} (n, n+1) = \mathbb{R} - \mathbb{Z}$$



$$\bigcap_{n \in \mathbb{Z}} (n, n+1) = \phi$$