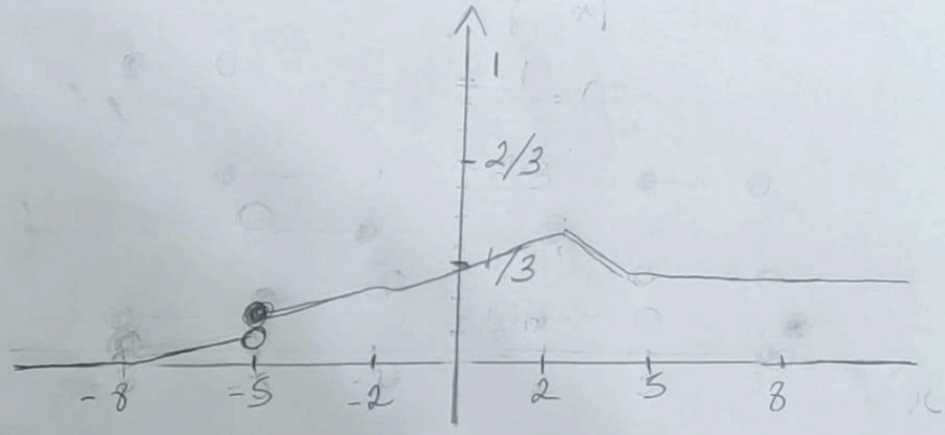
b)

$$F_x(x) = \begin{cases} 0, & x < -8 \quad (-8, 0) \\ \frac{x+8}{30}, & -8 \le x < -5 \quad \left(0, \frac{1}{10}\right) \\ \frac{1}{6} + \frac{x+5}{30}, & -5 \le x < -2 \quad \left(\frac{1}{6}, \frac{4}{15}\right) \\ \frac{1}{6} + \frac{x+2}{15}, & -2 \le x < 2 \quad \left(\frac{4}{15}, \frac{13}{30}\right) \\ \frac{1}{6} + \frac{x-2}{15}, & 2 \le x < 5 \quad \left(\frac{13}{30}, \frac{4}{15}\right) \\ \frac{1}{6} + \frac{x-5}{30}, & 5 \le x < 8 \quad \left(\frac{4}{15}, \frac{4}{15}\right) \\ 0, & x \ge 8 \end{cases}$$



e) $E[X] = \int_{-8}^{-5} x\,\frac{1}{30}\,dx + \int_{-5}^{-5} x\,\frac{1}{6}\,\gamma(x-5)\,dx + \int_{-5}^{-2} x\,\frac{1}{30}\,dx$

$+ \int_{-2}^{2} x\,\frac{1}{15}\,dx + \int_{2}^{5} x\,\frac{1}{30}\,dx + \int_{5}^{5} \frac{1}{6}\,\gamma(x+5)$

$+ \int_{5}^{8} x\,\frac{1}{30}\,dx$

$E[X] = \frac{1}{30}\left[\frac{x^2}{2}\right]_{-8}^{-5} + (-5)\,\frac{1}{6} + \frac{1}{30}\left[\frac{x^2}{2}\right]_{-5}^{-2} + \frac{1}{15}\left[\frac{x^2}{2}\right]_{-2}^{2} +$

$+ \frac{1}{30}\left[\frac{x^2}{2}\right]_{2}^{5} + 5\cdot\frac{1}{6} + \frac{1}{30}\left[\frac{x^2}{2}\right]_{5}^{8}$

$E[x] = \left(-\frac{13}{20}\right) + \left(-\frac{5}{6}\right) + \left(-\frac{7}{20}\right) + \frac{5}{6} + \frac{7}{20} + \frac{13}{20} = \emptyset$