

Ex. 1.3.7

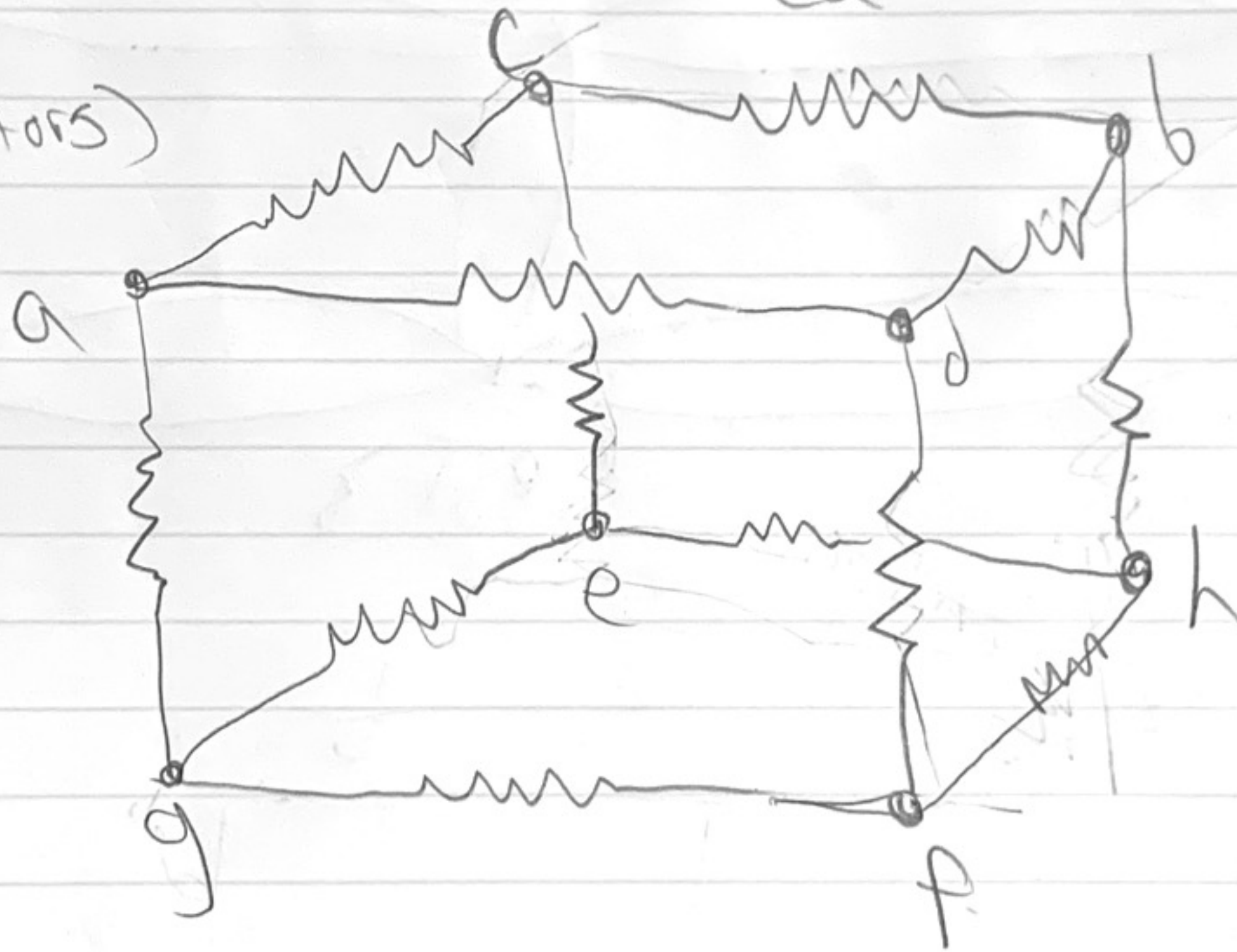
Want to find C_{eff} because

$$P_{esc} = \frac{C_{eff}}{C_a}$$

$$C_x = \sum_y C_{xy}$$

$$C_{xy} = 1 \text{ if } x, y$$

(unit resistors)



$$V_x = \sum_y \frac{C_{xy}}{C_x} V_y$$

$$= \sum_y \frac{1}{C_x} V_y$$

$$V(a) = 1, \quad V(b) = 0$$

$$V_c = \frac{1}{3} V_a + \frac{1}{3} V_e + \frac{1}{3} V_b$$

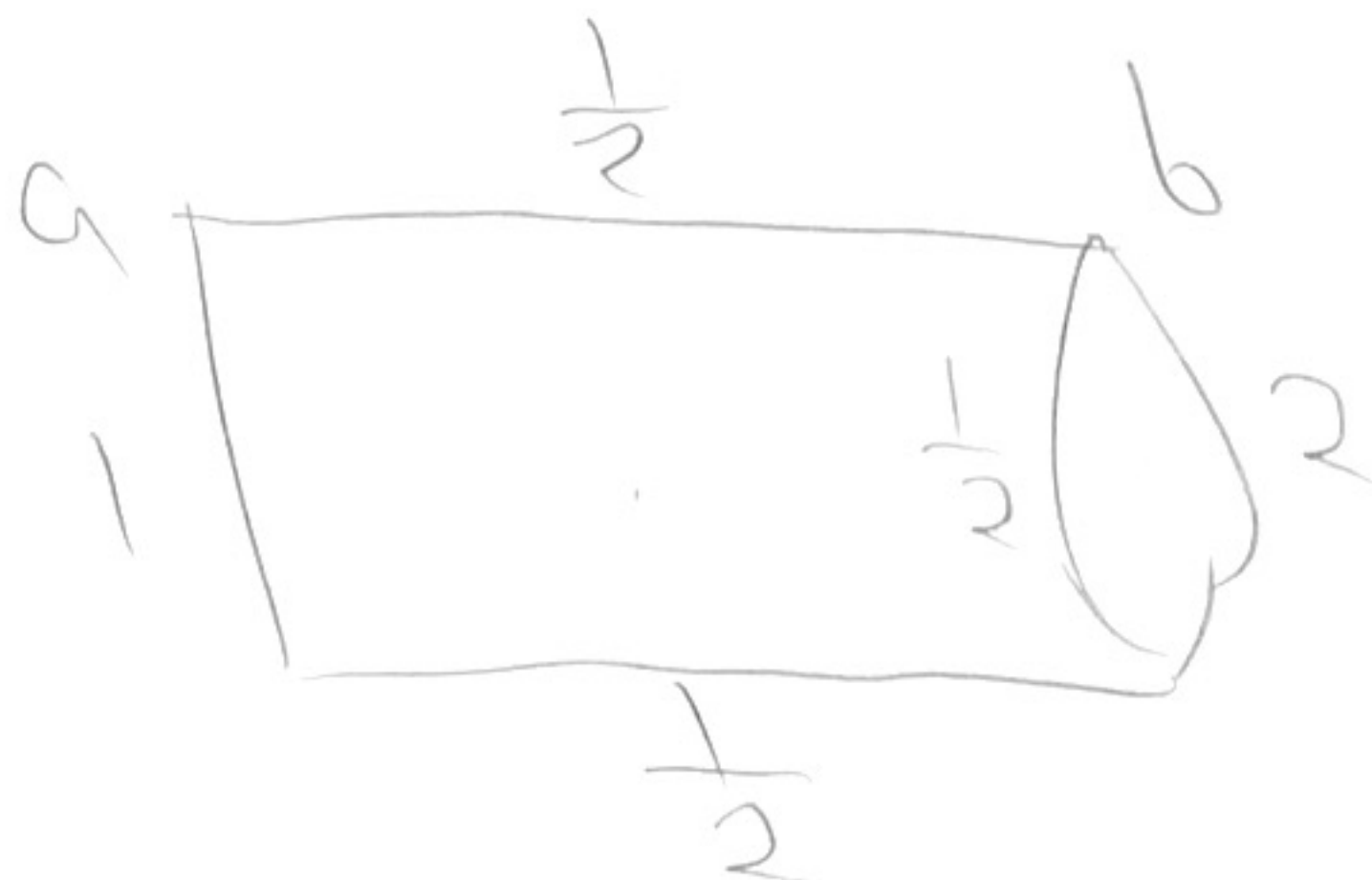
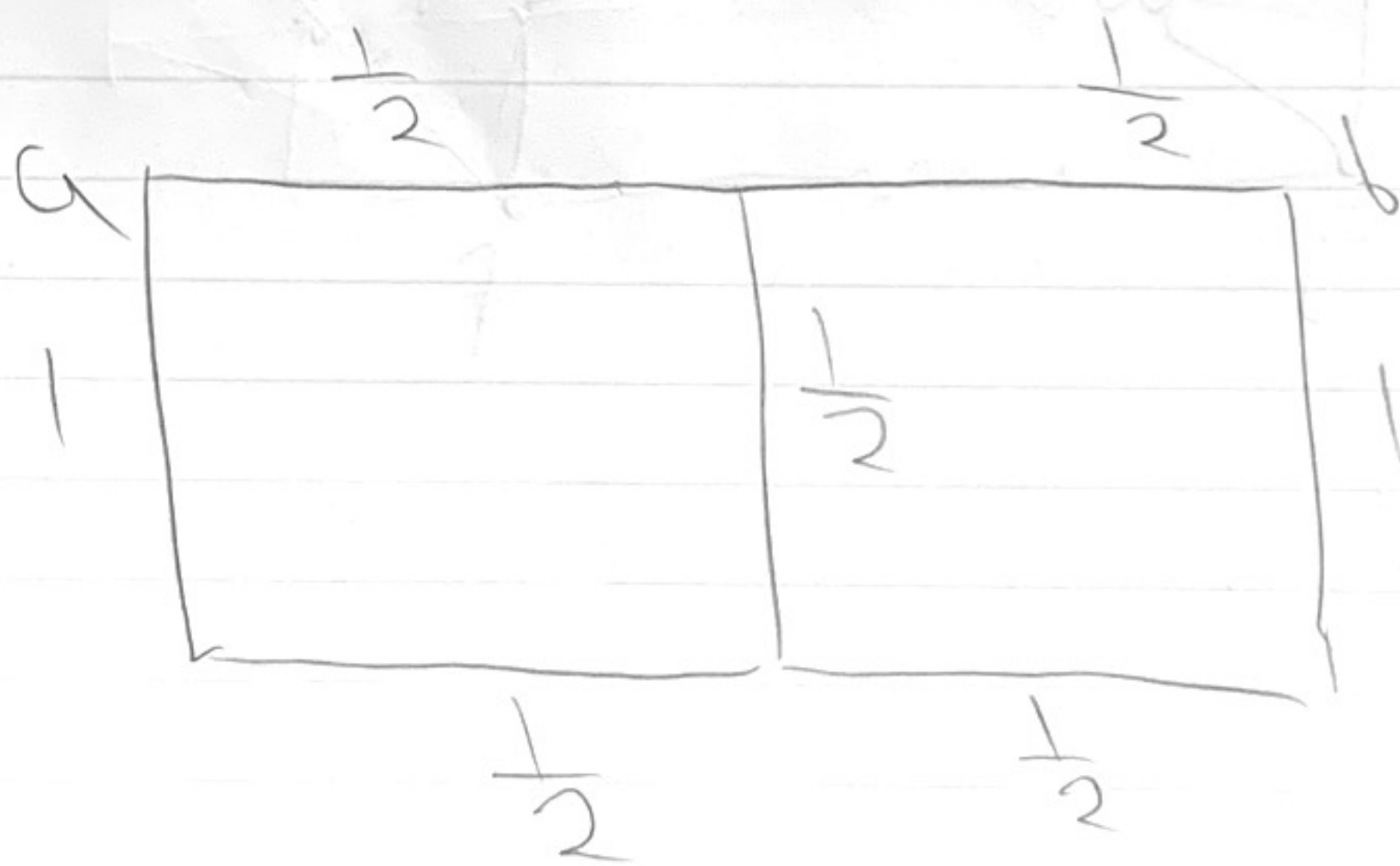
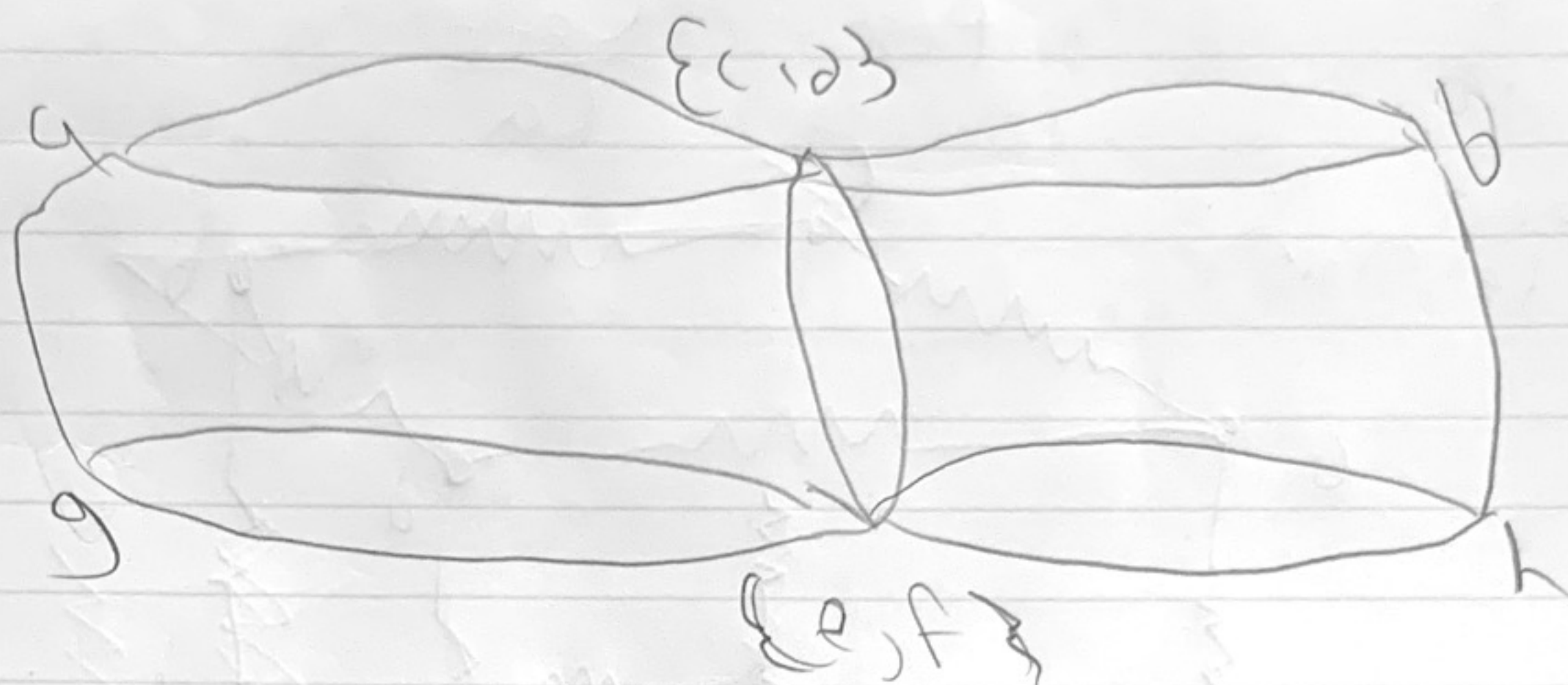
$$V_d = \frac{1}{3} V_a + \frac{1}{3} V_f + \frac{1}{3} V_b$$

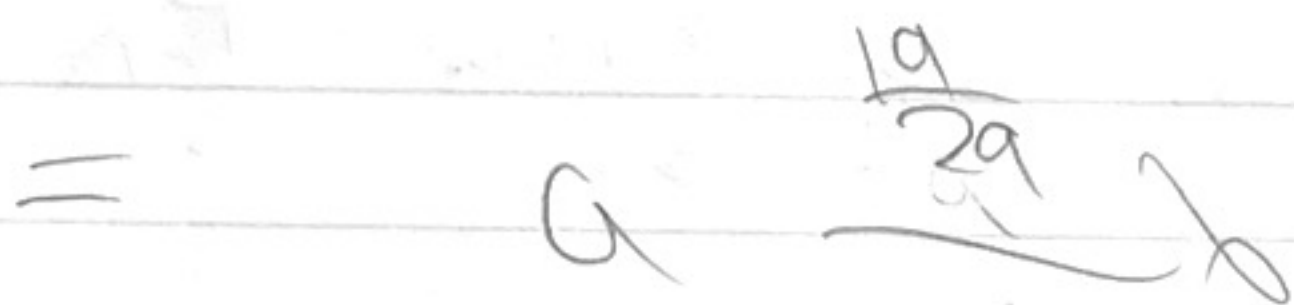
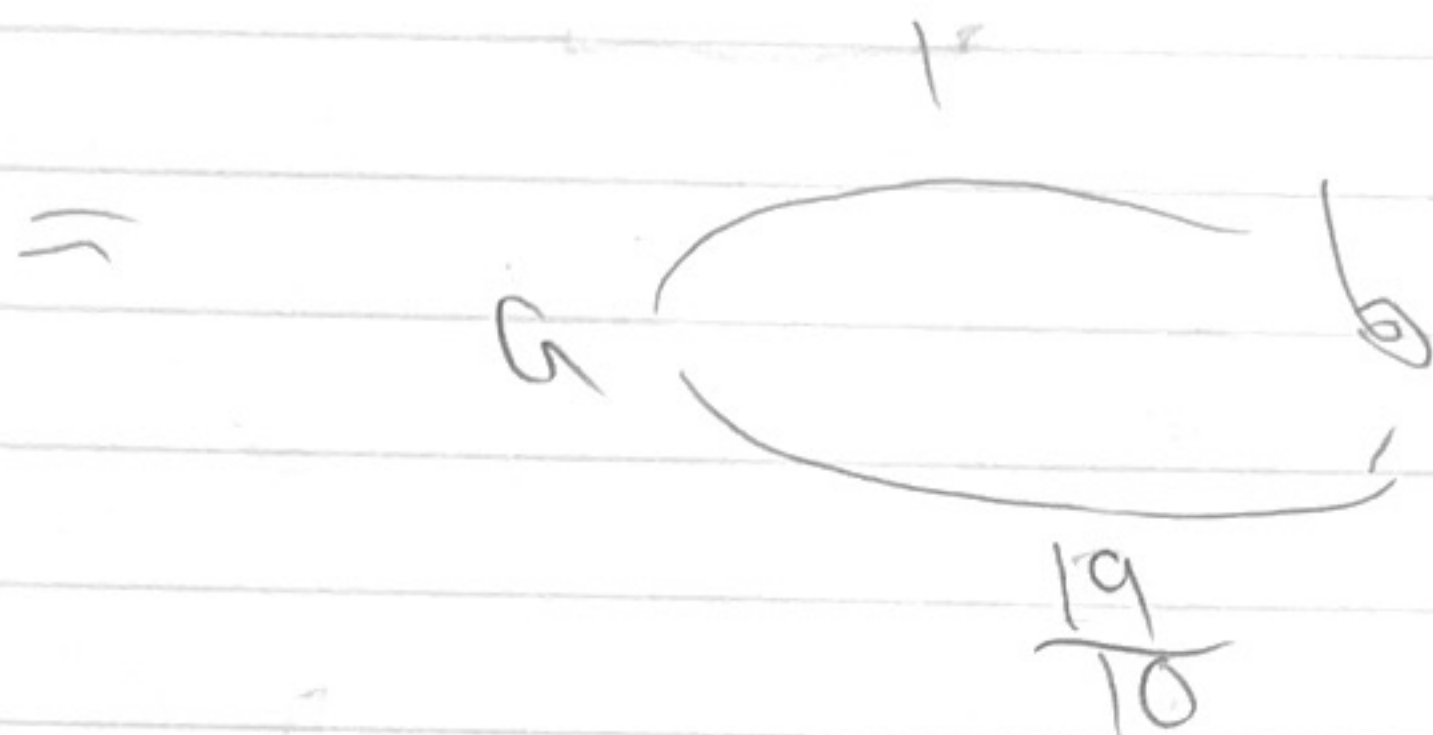
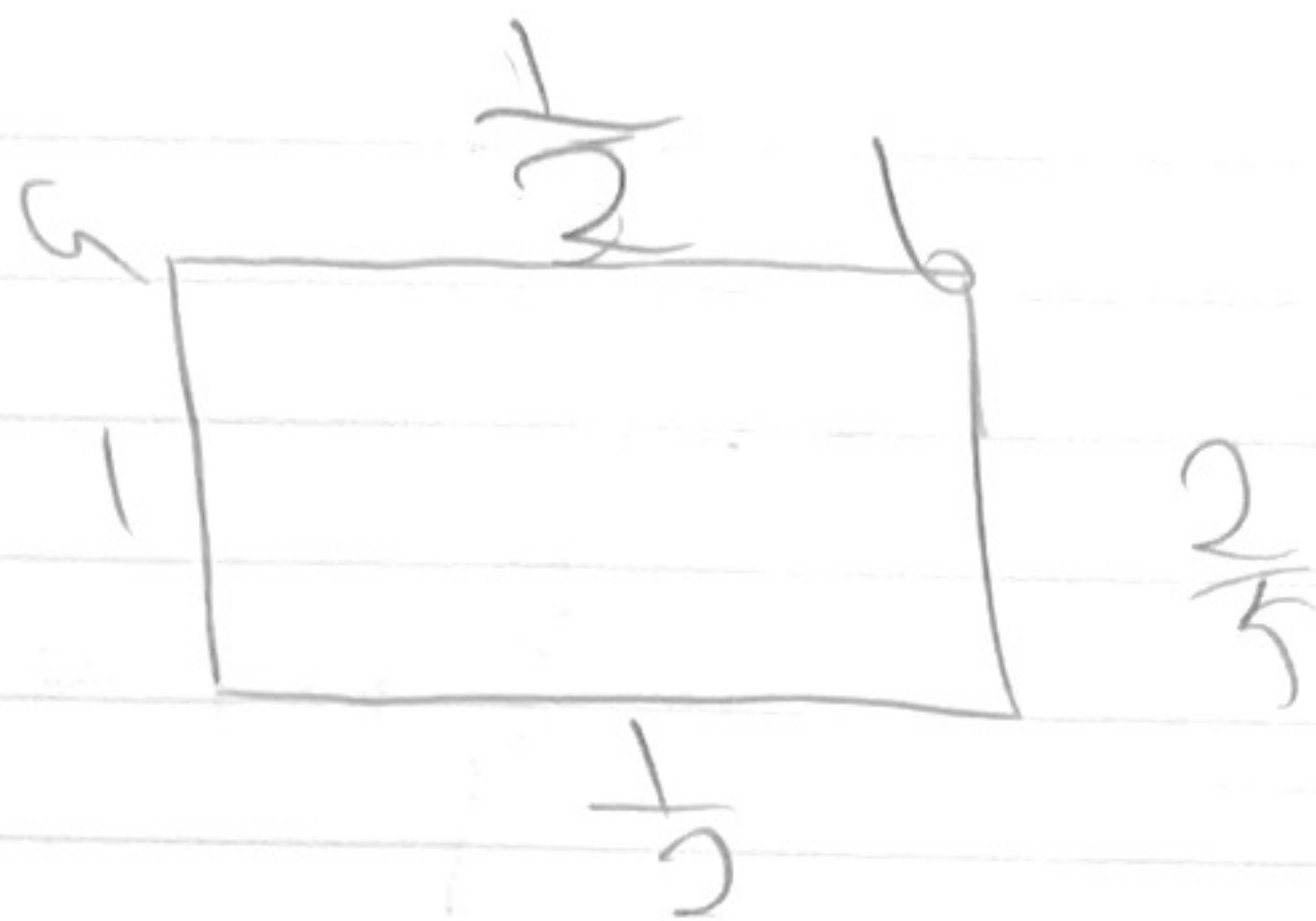
$$V_f = \frac{1}{3} V_h + \frac{1}{3} V_g + \frac{1}{3} V_d$$

$$V_e = \frac{1}{3} V_c + \frac{1}{3} V_g + \frac{1}{3} V_h$$

c, d same voltage

e, f same voltage





$$R_{eff} = \frac{19}{29}$$

$$C_{eff} = \frac{29}{19}$$

$$C_a = 3$$

$$P_{esc} = \frac{C_{eff}}{C_a} = \frac{\frac{29}{19}}{3} = \frac{29}{57}$$

$$\approx 0.5088$$