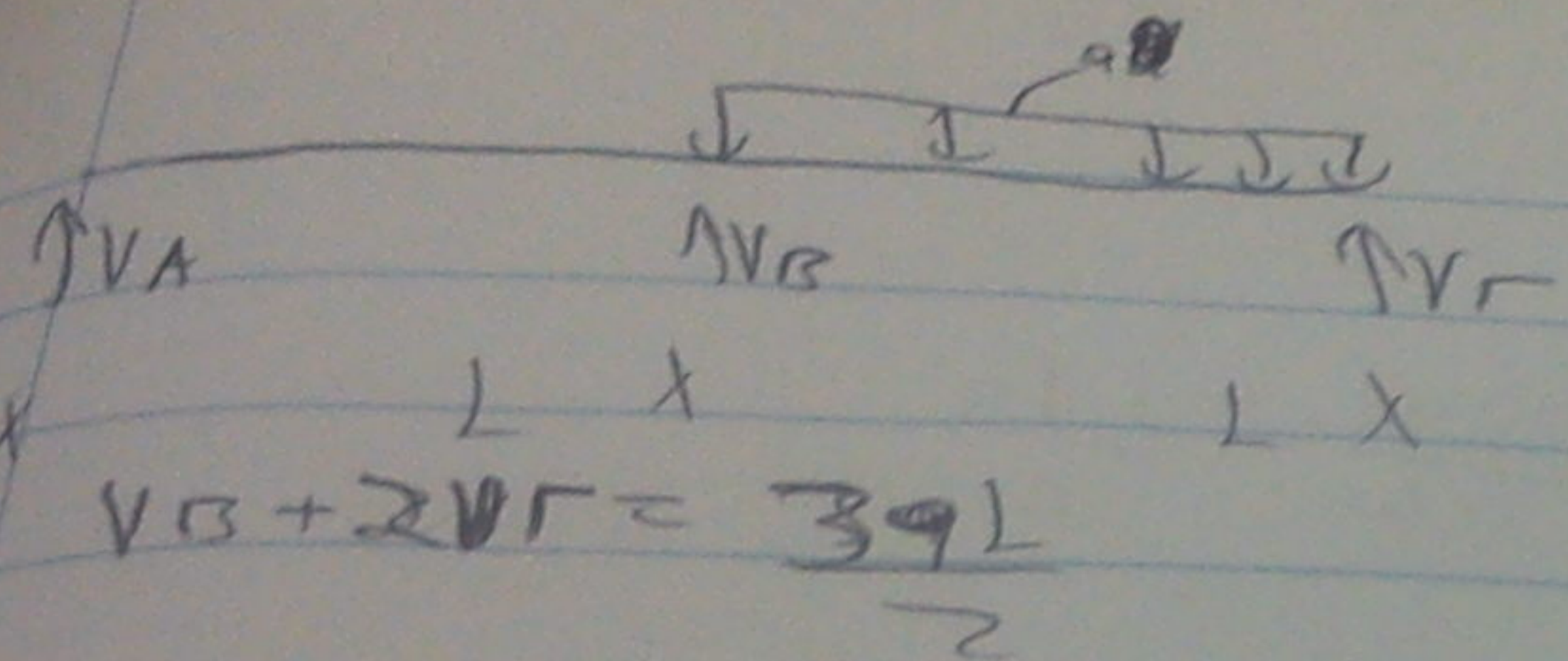




$$\sum F_y = 0 \Rightarrow$$

$$V_A + V_B + V_R = 9L$$

$$\sum M_A = 0 \Rightarrow 9L \cdot \frac{3L}{2} - V_B \Delta - V_R \cdot 2\Delta = 0 \Rightarrow$$

$$V_B + 2V_R = 39L$$

$$M(x) = +V_A x / 2 + V_B \cdot (x-L) - 9 \cdot (x-L) \cdot (x-L) / 2$$

$$EI \cdot z'' = -M(x) \Rightarrow$$

$$EI \cdot z'' = -V_A x / 2 - V_B \cdot (x-L) + 9 \cdot (x-L)^2 / 2$$

$$EI \cdot z' = (2 - V_A \cdot x^2 / 2 - V_B \cdot (x-L)^2 + 9 \cdot (x-L)^3 / 6) \Rightarrow$$

$$EI \cdot z = (2x + (2 - \frac{V_A x^3}{6} - \frac{V_B \cdot (x-L)^3}{6} + \frac{9(x-L)^4}{24}) / 2$$

$$z_L(x) = \frac{1}{EI} \left(2x + (2 - \frac{V_A x^3}{6}) \right)$$

$$V_B \cdot (x-L)^3 + 9(x-L)^4$$

$$EI \cdot z = (2x + c_2 - \frac{V_A x^3}{6}) \Big|_2 - \frac{V_B (x-2)^3}{6} + \frac{9(x-2)^4}{24} \Big|_2$$

$$z(x) = \frac{1}{EI} \left((2x + c_2 - \frac{V_A x^3}{6}) \right)$$

$$z_2(x) = \frac{1}{EI} \cdot \left((2x + c_2 - \frac{V_A x^3}{6}) - \frac{V_B (x-2)^3}{6} + \frac{9(x-2)^4}{24} \right)$$

Τιμές $z_2(A) = z_2(B) = z_2(C) = z_2(D) = 0$

Από $z_2(A) = 0 \Rightarrow c_2 = 0$

Από $z_2(B) = 0 \Rightarrow (2 \cdot L - \frac{V_A \cdot L^3}{6}) = 0 \Rightarrow \boxed{c_2 = \frac{V_A \cdot L^2}{6}}$

Από $z_2(D) = 0 \Rightarrow \frac{V_A \cdot L^2 \cdot 2L}{6} - \frac{V_A \cdot (2L)^3}{6} - \frac{V_B \cdot L^3}{6} + \frac{9L^4}{24} = 0 \Rightarrow$

$$\frac{V_A \cdot 2L^3}{6} - \frac{V_A \cdot 8L^3}{6} - \frac{V_B \cdot L^3}{6} + \frac{9L^4}{24} = 0 \Rightarrow$$

$$\cancel{V_A L^3} + \frac{V_B \cdot L^3}{6} = \frac{9L^4}{24} \Rightarrow V_A = \frac{9L}{24} - \cancel{\frac{V_B}{6}}$$

$$\text{Apq } \frac{9L}{24} - \frac{V_B}{6} + V_B + V_r = 9L \Rightarrow$$

$$\frac{5V_B}{6} + V_r = \frac{239L}{24} \Rightarrow V_r = \frac{239L}{24} - \frac{5V_B}{6}$$

$$V_B + 2 \cdot \left(\frac{239L}{24} - \frac{5V_B}{6} \right) = \frac{39L}{2} \Rightarrow$$

$$\cancel{V_B} + \frac{239L}{12} - \frac{20}{12} V_B = \frac{39L}{2} \Rightarrow$$

$$\left(\frac{12}{12} - \frac{20}{12} \right) V_B = \left(\frac{28}{12} - \frac{23}{12} \right) 9L \Rightarrow$$

$$-\frac{8}{12} V_B = -\frac{5}{12} 9L \Rightarrow \boxed{V_B = \frac{5}{8} 9L}$$

$$\text{Apq } V_A = \frac{9L}{24} - \frac{5}{8} 9L \cdot \frac{1}{6} = \frac{9L}{24} - \frac{59L}{48} = \frac{29L}{48} - \frac{59L}{48} =$$

$$\frac{-39L}{48} = \frac{-9L}{16} \Rightarrow \boxed{V_A = -\frac{9L}{16}}$$

$$\Delta/A \quad V_A = \frac{9L}{24} - \frac{5}{8} \cdot \frac{9L}{6} = \frac{9L}{24} - \frac{59L}{48} = \frac{29L}{48} - \frac{59L}{48} =$$

$$-\frac{39L}{48} = -\frac{9L}{26} \Rightarrow \boxed{V_A = -\frac{9L}{26}}$$

$$V_r = \frac{239L}{24} - \frac{5}{2} \cdot \frac{5}{8} \cdot 9L = \frac{469L}{48} - \frac{25}{48} 9L = \frac{21}{48} 9L = \frac{7}{26} 9L =$$

$$\boxed{V_r = \frac{7}{26} 9L}$$

Επειδή ο φορέας είναι συνεχής, τοποθετώντας το κατανεμημένο φορτίο από Α έως Β (όπου είναι η επιρροή) αλλάζουν οι V_A , V_r και η V_B παραμένει

