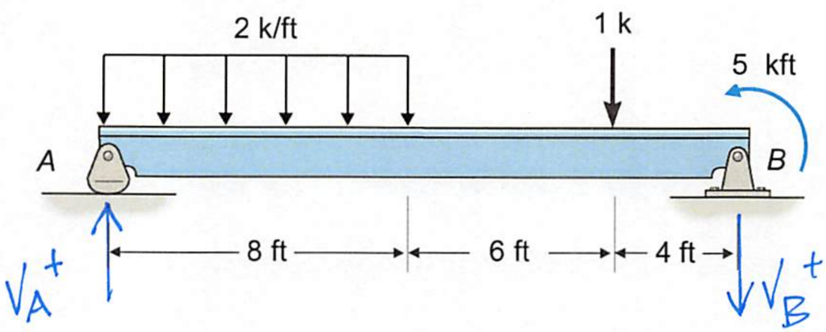
CIVL 3121 Quiz #5 F25 Name: ____________________

Construct a complete shear force and bending moment diagram for the following beam.



$\circlearrowleft + \sum M_B = 0 = 5kft + 1^k(4') + 16^k(14') - V_A(18')$

$\underline{V_A = 12.94^K}$

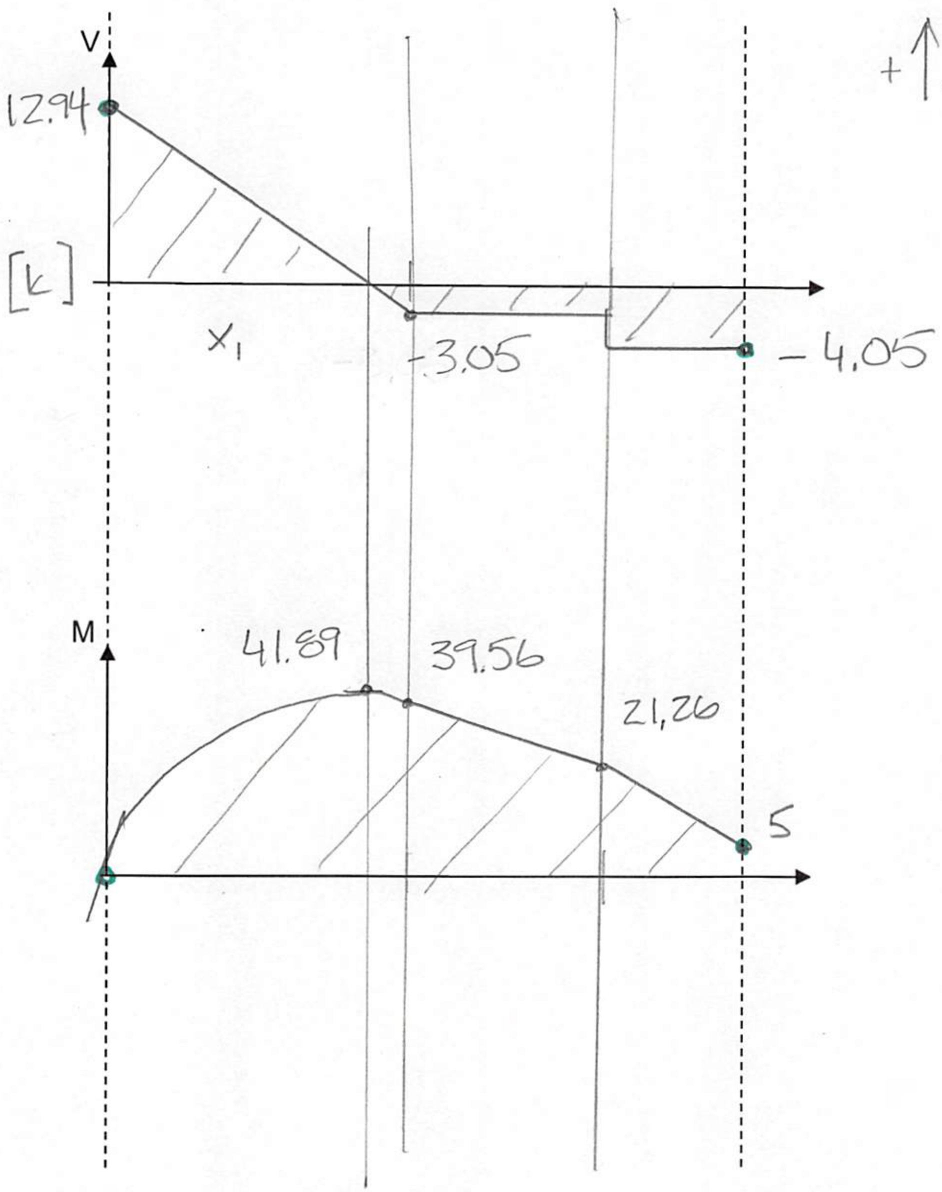
$+\uparrow \sum F_y = 0 = V_A - V_B - 1^k - 16^k$

$\underline{V_B = -4.05^k}$

$\Delta V = \int w\,dx \qquad \frac{dV}{dx} = w$

$X_1 = \frac{12.94k}{2k/ft} = 6.47'$

$\Delta M = \int V\,dx \qquad \frac{dM}{dx} = V$



a) What is the maximum bending moment, and where does it occur? 41.89 kft @ x = 6.47'

b) What is the maximum shear force, and where does it occur? 12.94K @ A

c) What is the slope of the bending moment diagram at *x* = 8 ft? -3.05K