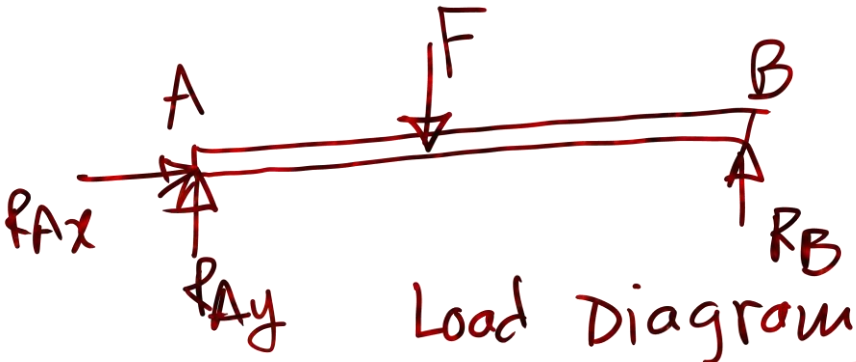
Beam Types

① Simple Beam

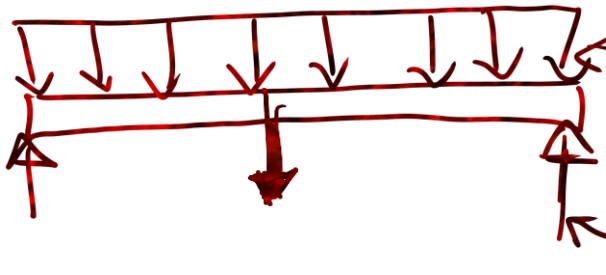


Load Diagram

Two Types of Loads →

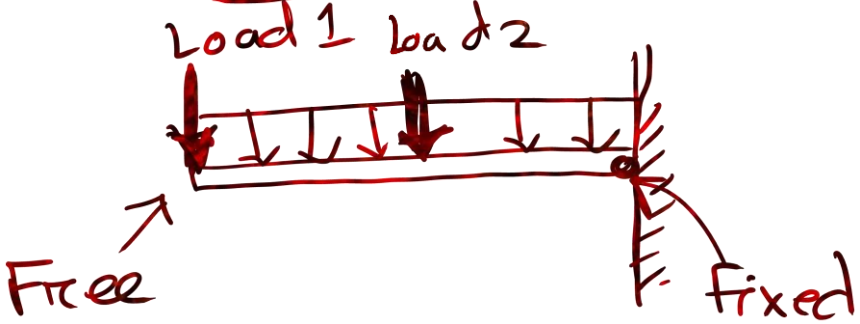
Concentrated

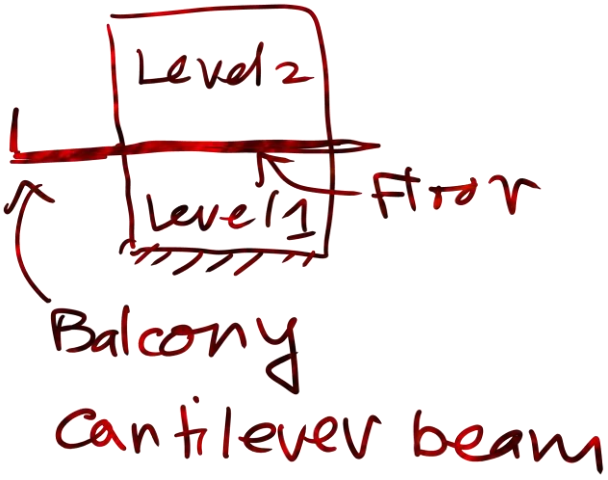
Distributed



over hanging

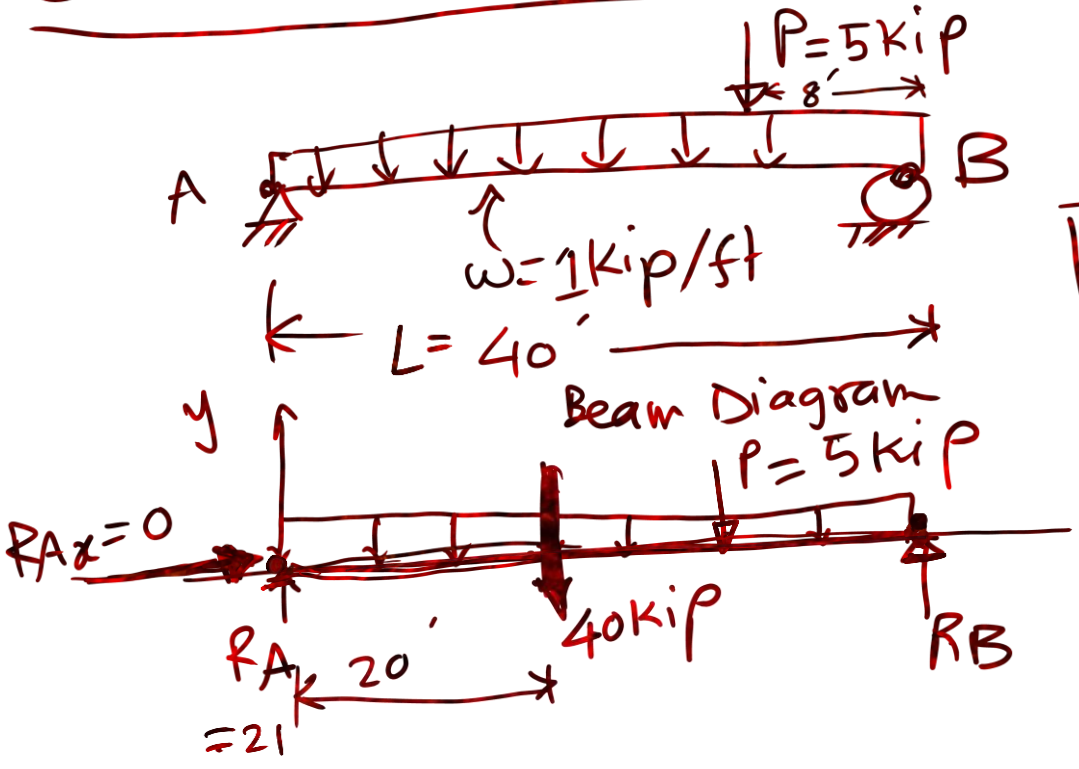
Cantilever Beam





Continuous Beam → Long bridge

Calculate Reaction Force →



Kip = kilo-lb

Convert Distributed Load into concentrated Load.

$F = L \cdot w$

$= 40\ kip$

Take moment about B

$M_B \overset{+}{\circlearrowright} = 0 \rightarrow$ $R_A * 40 = 40 \times 20 + 5 * 8$

$\Rightarrow R_A = 21 \text{ kip}$

$R_B = 40 + 5 - 21 = 24 \text{ kip}$

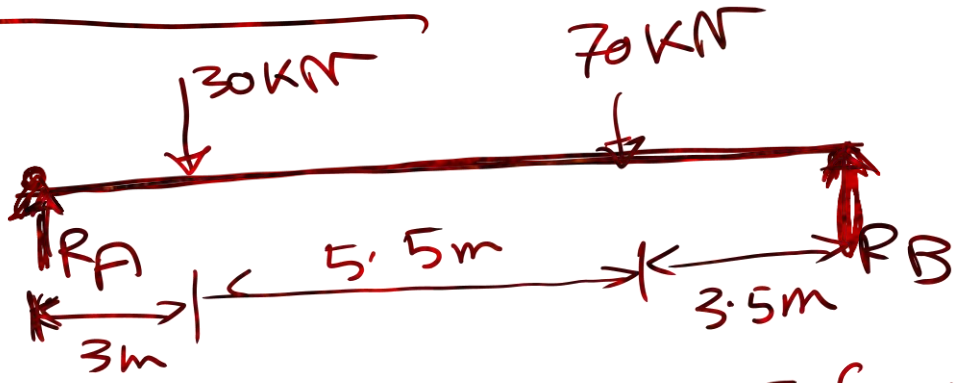
$M_B \overset{+}{\circlearrowright} = 0 \therefore R_A * 40 - 40 \times 20 - 5 * 8 = 0$

$M_A \overset{+}{\circlearrowright} = 0 \therefore R_B * 40 - 40 * 20 - 5 * 32 = 0$

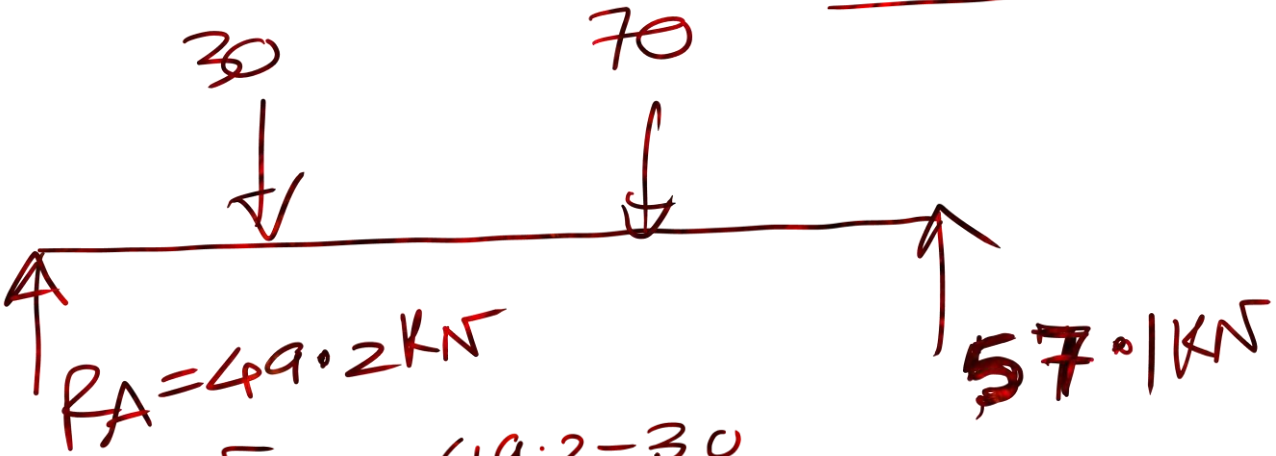
$\Rightarrow R_B = 24 \text{ kip}$

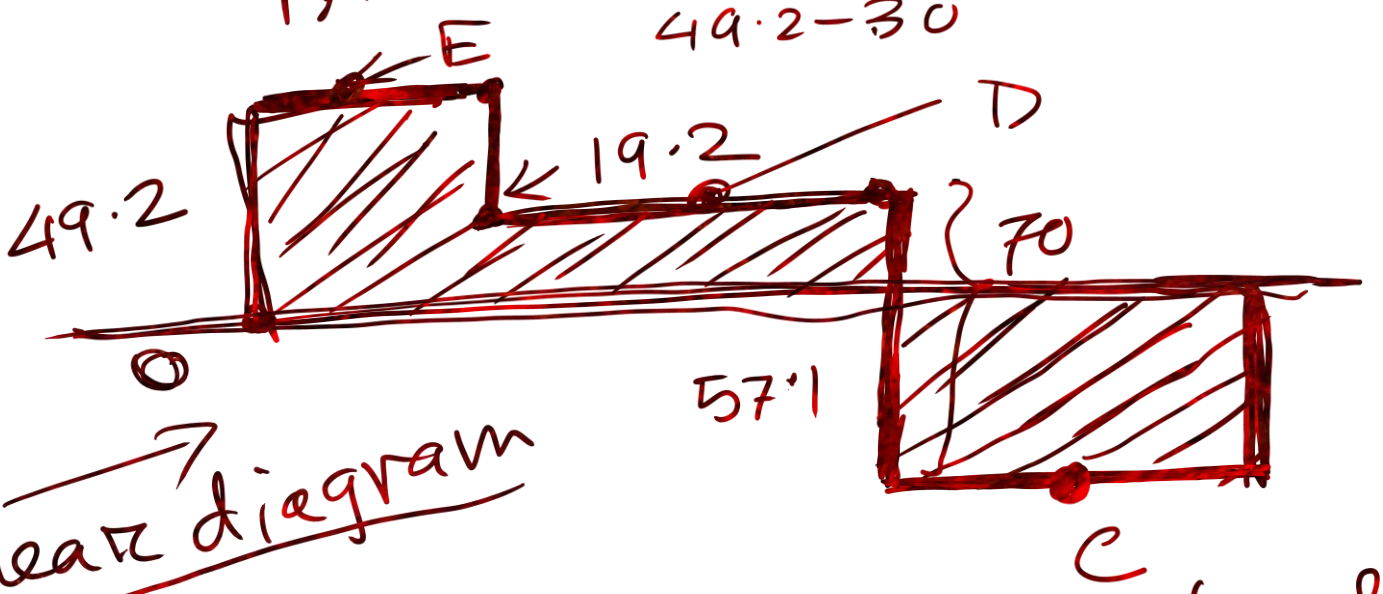
$R_A = 21 \text{ kip}$

Shear Diagram → SI unit



I found
RA = 49.2KN



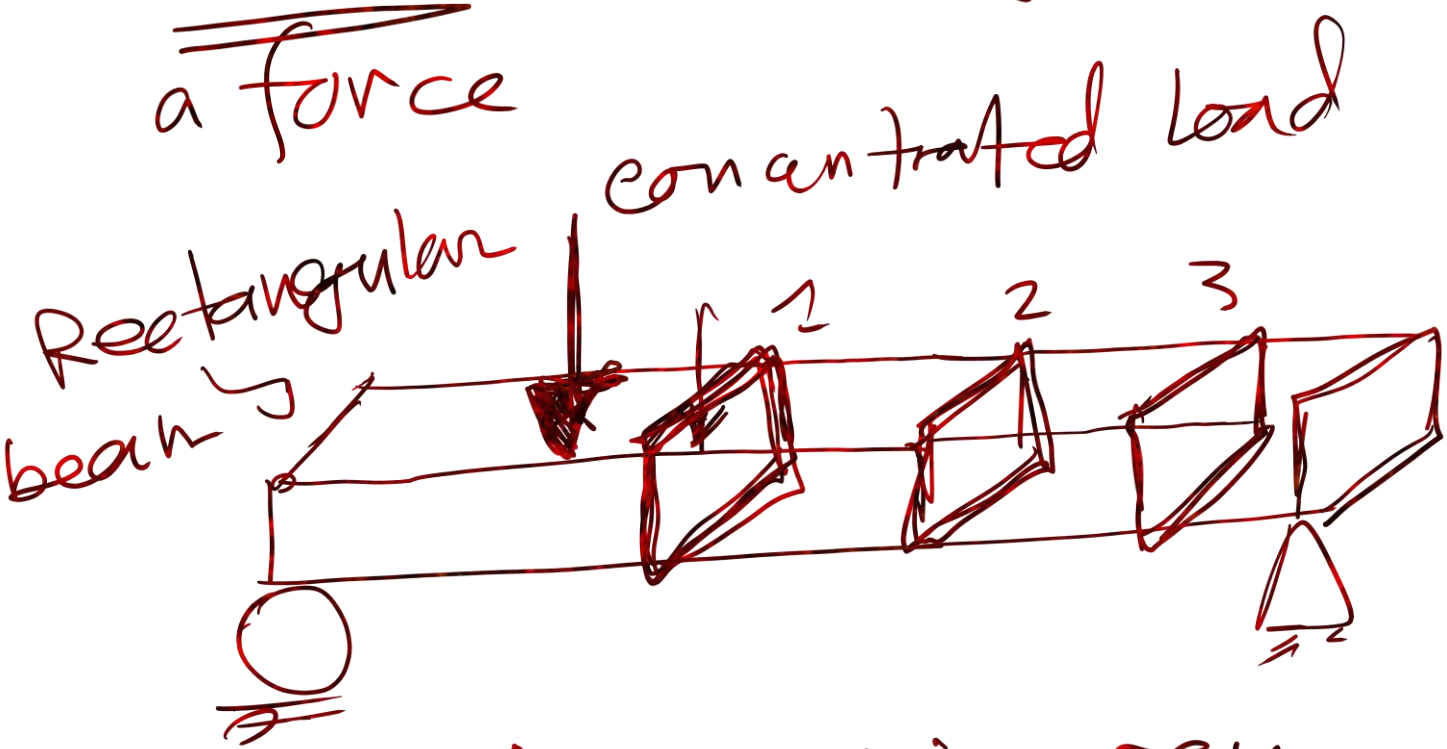


Shear diagram

Shear force at C & D?

at E = 49.2KN at C = 57.1KN
" D = 19.2 KN

Shear is nothing but a force



Shear force Diagram represents net load in parallel to each beam section