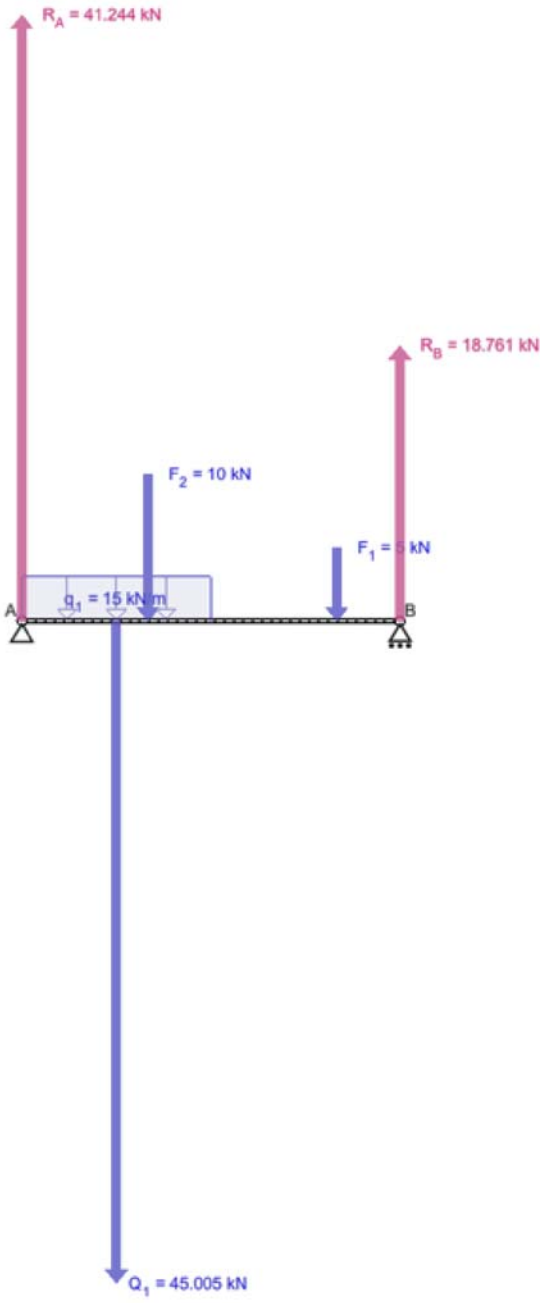
AUTODESK® FORCEEFFECT™



Inputs:

Elements

Element	Length	Weight
A-B	6.000 m	

Forces

Force	Direction	Size	Angle
F_1	↓	5.000 kN	270.0°
F_2	↓	10.000 kN	270.0°

Distributed Loads

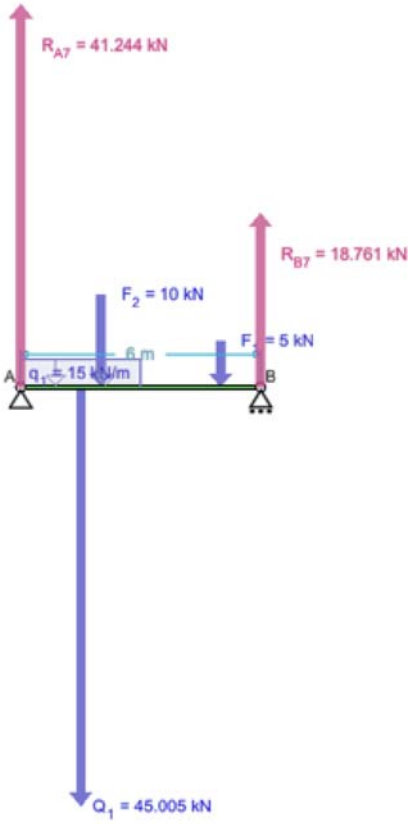
Distributed Load	Direction	Size
Q_1	↓	45.005 kN (15.000 kN/m)

Results:

Reaction Forces

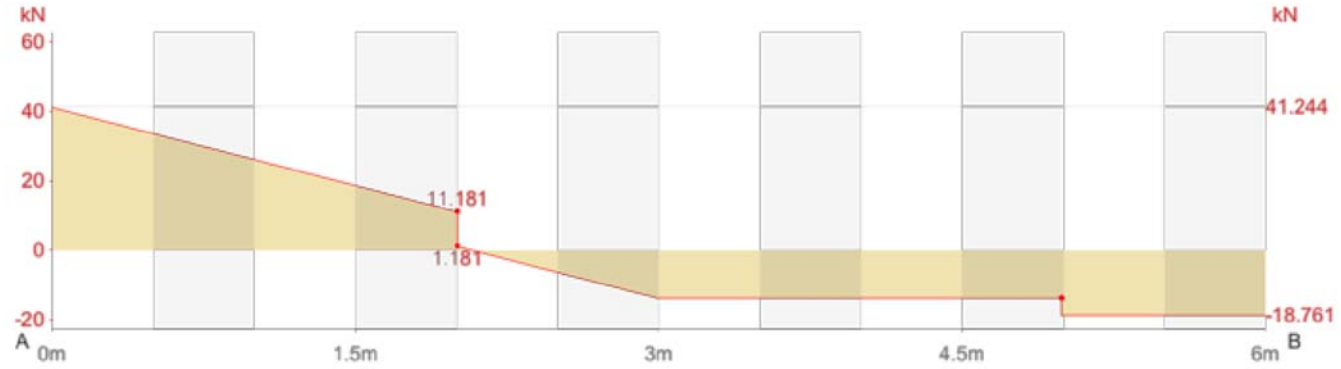
Force	Direction	Size	Angle
R_A	↑	41.244 kN	90.0°
R_B	↑	18.761 kN	90.0°

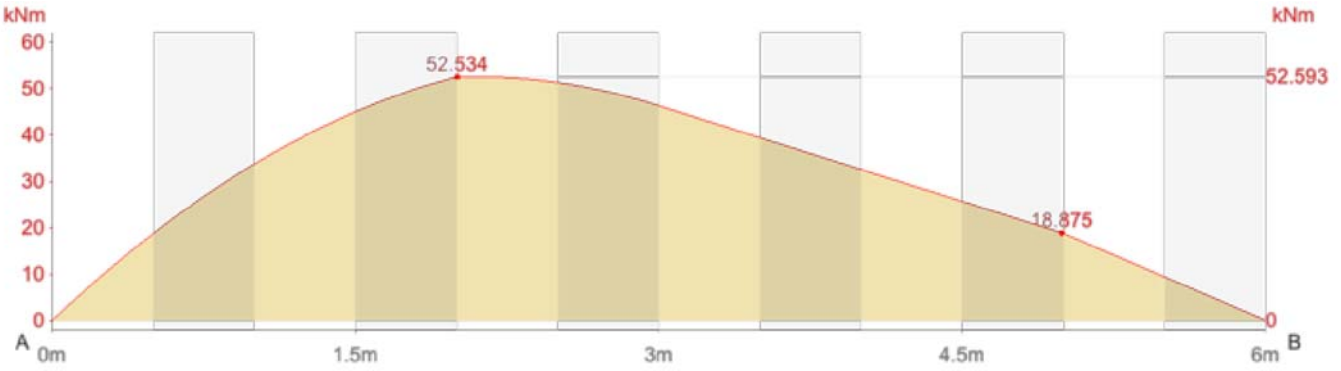
Element A-B



Equations	Results
$\Sigma M = 0 \Rightarrow 6.000 \times R_{B7[Y]} = -F_{1[Y]} \times 4.999 - F_{2[Y]} \times 2.005 - Q_{1[Y]} \times 1.500$	$R_{A7[X]} = -0.000$ kN
$\Sigma F_{[X]} = 0 \Rightarrow R_{A7[X]} + R_{B7[X]} = -F_{1[X]} - F_{2[X]} - Q_{1[X]}$	$R_{A7[Y]} = 41.244$ kN
$\Sigma F_{[Y]} = 0 \Rightarrow R_{A7[Y]} + R_{B7[Y]} = -F_{1[Y]} - F_{2[Y]} - Q_{1[Y]}$	$R_{B7[X]} = 0.000$ kN
$\Sigma F_{[X]} = 0 \Rightarrow R_{A[X]} - R_{A7[X]} = 0$	$R_{B7[Y]} = 18.761$ kN
$\Sigma F_{[Y]} = 0 \Rightarrow R_{A[Y]} - R_{A7[Y]} = 0$	
$\Sigma F_{[X]} = 0 \Rightarrow R_B \times \cos(270.0) - R_{B7[X]} = 0$	
$\Sigma F_{[Y]} = 0 \Rightarrow R_B \times \sin(270.0) - R_{B7[Y]} = 0$	

Shear Force and Moment Diagram


kN
60
40
20
0
-20
A
0m
1.5m
3m
4.5m
6m
B
11.181
1.181
41.244
-18.761


kNm
60
50
40
30
20
10
0
A
0m
1.5m
3m
4.5m
6m
B
52.534
18.875
52.593
0