Solutions: 2-5-5.7.Mk-01

① $\Sigma M_x = (8000\,lb)(6ft) - R_D(14ft) - (6000\,lb)(8ft) + R_E(14ft) = 0$

② $\Sigma M_y = (8000\,lb)(4ft) + (6000\,lb)(4ft) + (45000\,lb)(7ft) - R_F(27) = 0$

③ $\Sigma f_z = (R_D + R_E + R_F) - 8000\,lb - 6000\,lb - 45000\,lb = 0$

equation 2

$$R_F = \frac{(8000\,lb)(4ft) + (6000\,lb)(4ft) + (45000\,lb)(7ft)}{27} = 13740.716$$

① $\Sigma M_x = 0 = (8000\,lb)(6ft) - R_D(14ft) - (6000\,lb)(8ft) + R_E(14ft)$

$= 48000\,lbft - R_D 14 - 48000\,lbft + RE.14ft$

$\Sigma M_x = 0 = R_E - R_D$

③ $\Sigma M_y = 0 = R_D + R_E + 13740.716 - 8000\,lb - 6000\,lb - 45000\,lb$

$45259 = R_D + R_E$

$R_D = R_E$

$45259 = 2R_D \Rightarrow$ $R_D = 22629\,lbs$

$R_E = 22629\,lbs$