Remarks: See §7.3, page 255 till 269 and example 4
Also see §7.2, page 248 till 254

Answers:

a. $R = 7687$ kN
Line of action goes through the axle of the slide
Angle with the horizontal: $36,6^\circ$

b. $R = 5457$ kN
Line of action goes through the axle of the slide
Angle with the horizontal $39,3^\circ$

c. $R = 2298$ kN
Line of action goes through the axle of the slide
Angle with the horizontal: $45,9^\circ$

Remarks: *For description see figures 7.25 and 7.26, page 261*

a. $A^{(ADBC)} = 36,56\ \text{m}^2$; $A^{(ABC)} = 29,45\ \text{m}^2$; $A^{(ADB)} = 7,11\ \text{m}^2$
Forces on a 1 m width vertical part:
$R_{h;w} = 308,75$ kN; $R_{v;w} = 300$ kN; $G_w = 71,1$ kN
Then a width of 20 m gives:
$R_x = (20\ \text{m})(308,75\ \text{kN}) = 6175$ kN
$R_y = (20\ \text{m})\{(300\ \text{kN}) - (71,1\ \text{kN})\} = 4578$ kN
$R = 7687$ kN; $\tan\alpha = 4578/6175 \rightarrow \alpha = 36,6^\circ$

b. $A^{(ADBC)} = 36,56\ \text{m}^2$; $A^{(ABC)} = 29,45\ \text{m}^2$; $A^{(ADB)} = 7,11\ \text{m}^2$
Forces on a 1 m width vertical part:
$R_{h;w} = 211,25$ kN; $R_{v;w} = 243,75$ kN; $G_w = 71,1$ kN
Then a width of 20 m gives:
$R_x = (20\ \text{m})(211,25\ \text{kN}) = 4225$ kN
$R_y = (20\ \text{m})\{(243,75\ \text{kN}) - (71,1\ \text{kN})\} = 3453$ kN
$R = 5457$ kN; $\tan\alpha = 3453/4225 \rightarrow \alpha = 39,3^\circ$

See next page ▼

Remarks:

c. *See figure*

$A^{(PQBC)} = 33{,}77\ \text{m}^2$; $A^{(PQC)} = 8{,}84\ \text{m}^2$; $A^{(QBC)} = 19{,}90\ \text{m}^2$
$A^{(QBD)} = 5{,}03\ \text{m}^2$

Forces on a 1 m width vertical part:
$R_{h;w} = 80\ \text{kN}$; $R_{v;w} = 132{,}8\ \text{kN}$; $G_w = 50{,}3\ \text{kN}$

Then a width of 20 m gives:
$R_x = (20\ \text{m})(80\ \text{kN}) = 1600\ \text{kN}$
$R_y = (20\ \text{m})\{(132{,}8\ \text{kN}) - (50{,}3\ \text{kN})\} = 1650\ \text{kN}$
$R = 2298\ \text{kN}$; $\tan\alpha = 1650/1600 \rightarrow \alpha = 45{,}9^\circ$