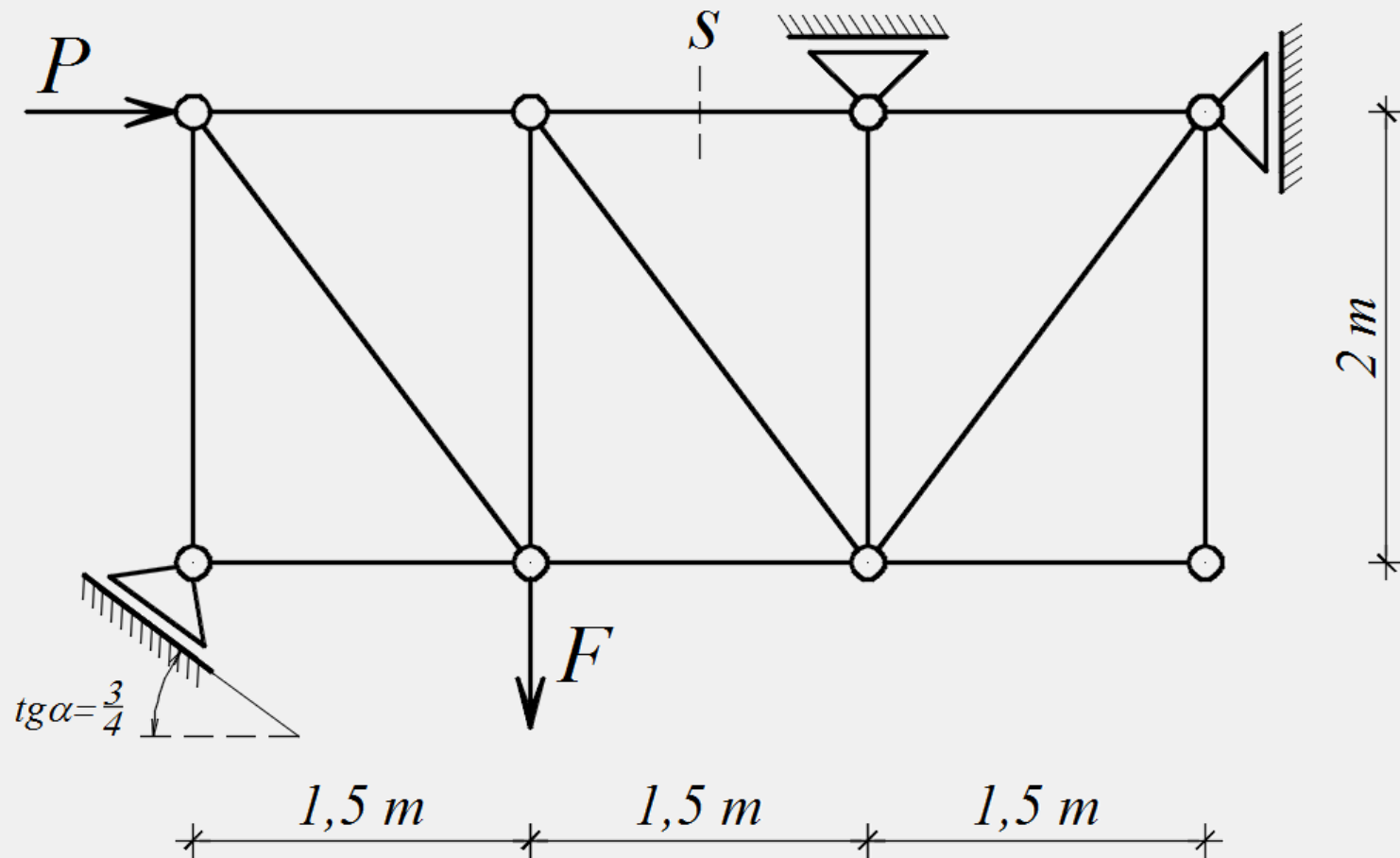
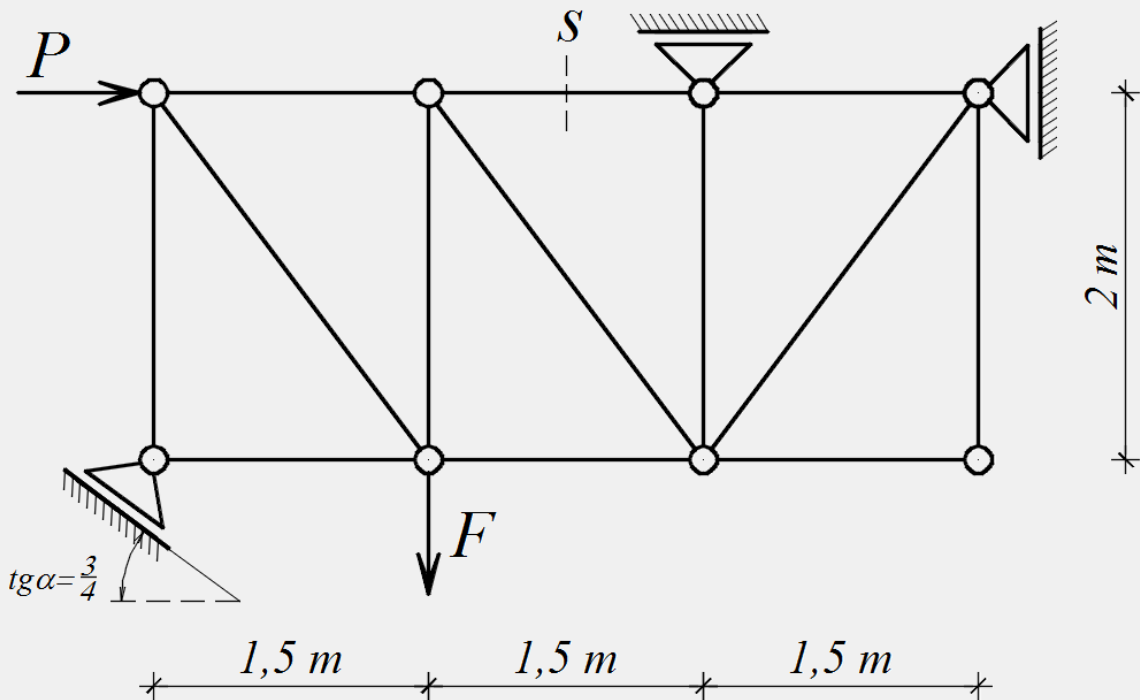


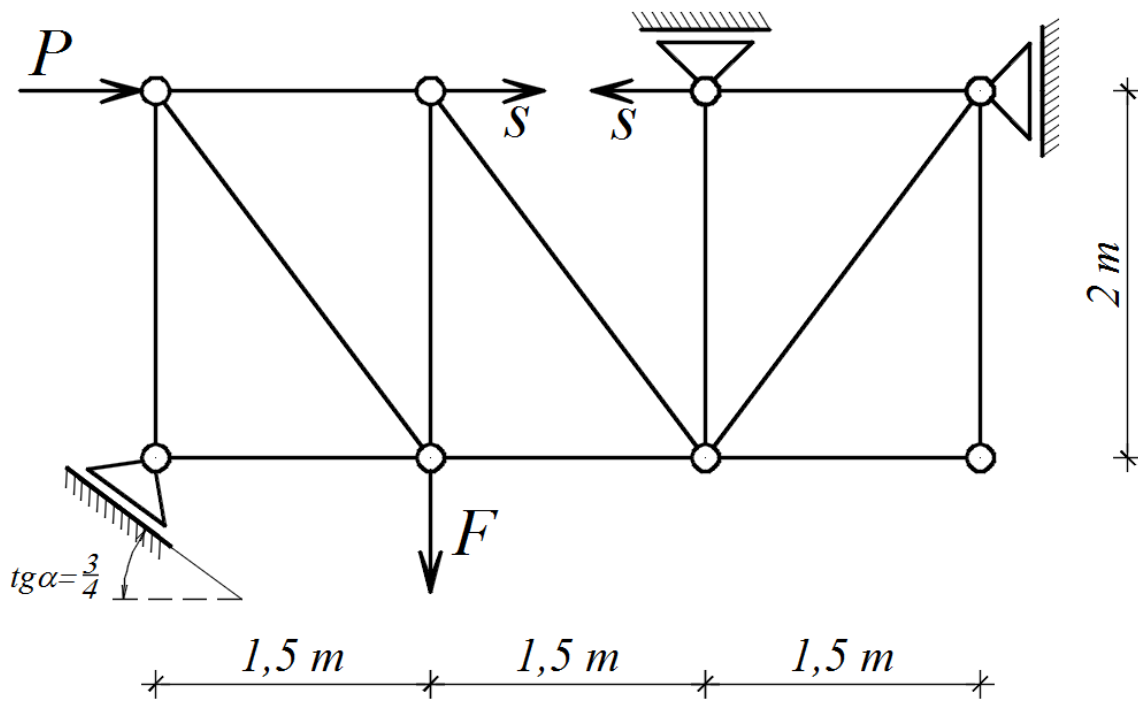
ZA ZADANI STATIČKI SUSTAV POTREBNO JE ODREDITI SILU U OZNAČENOM ŠTAPU.

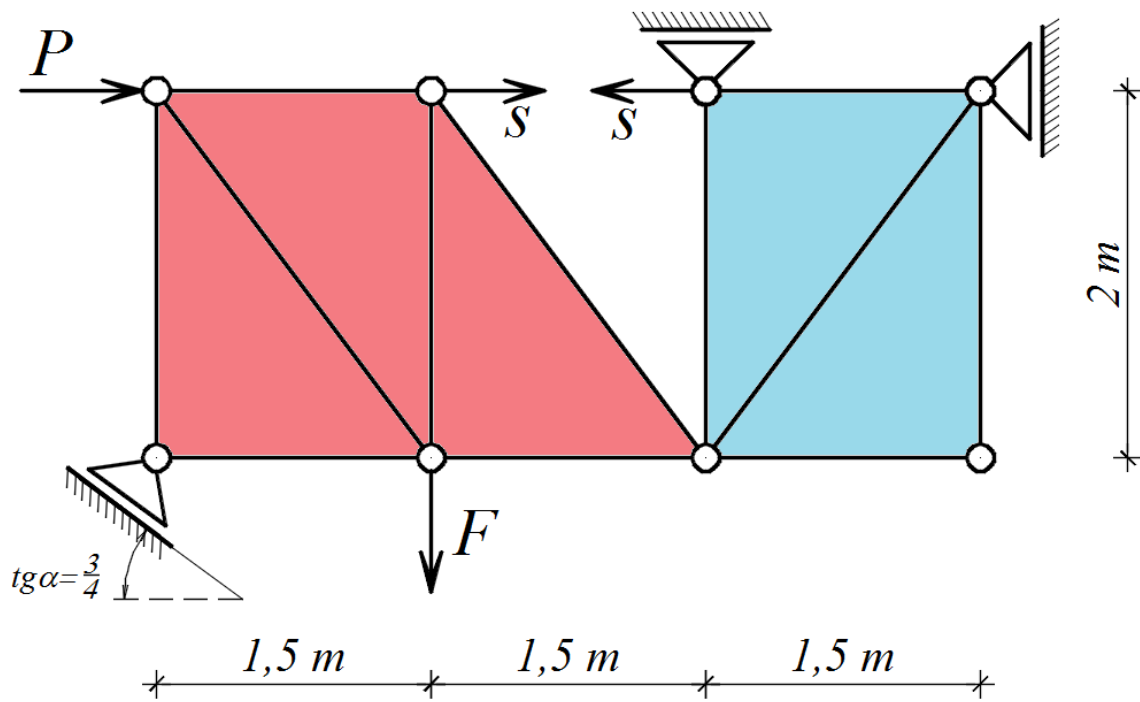
$P = 1,5 \text{ kN}$

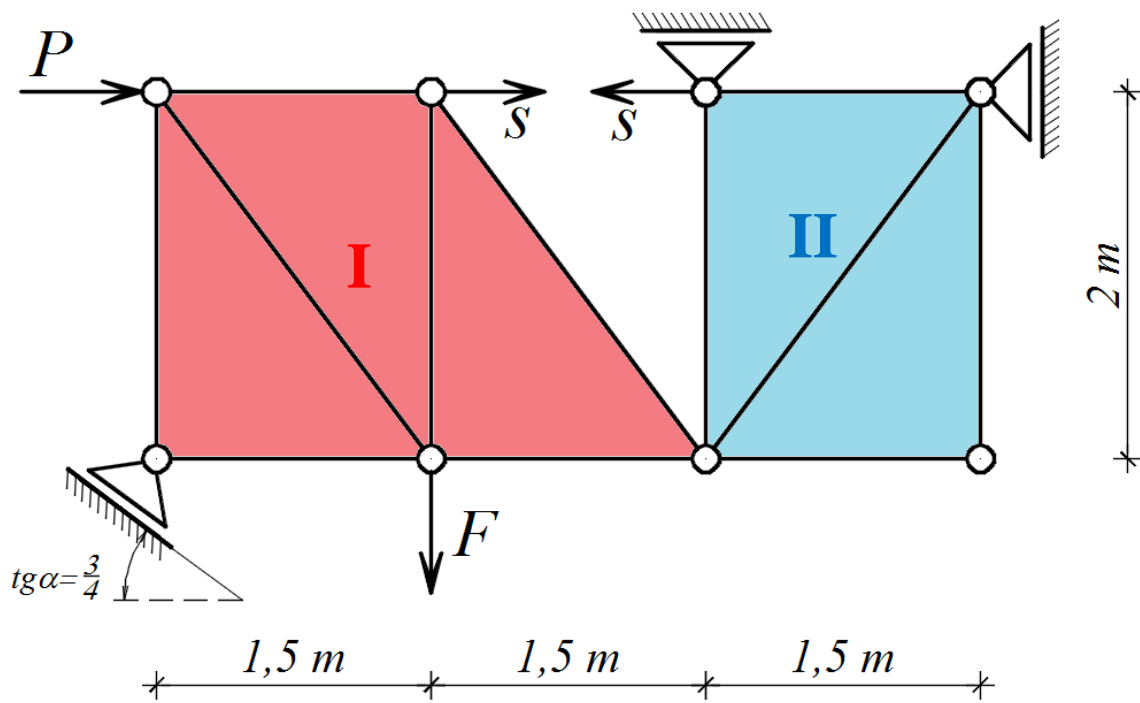
$F = 6 \text{ kN}$



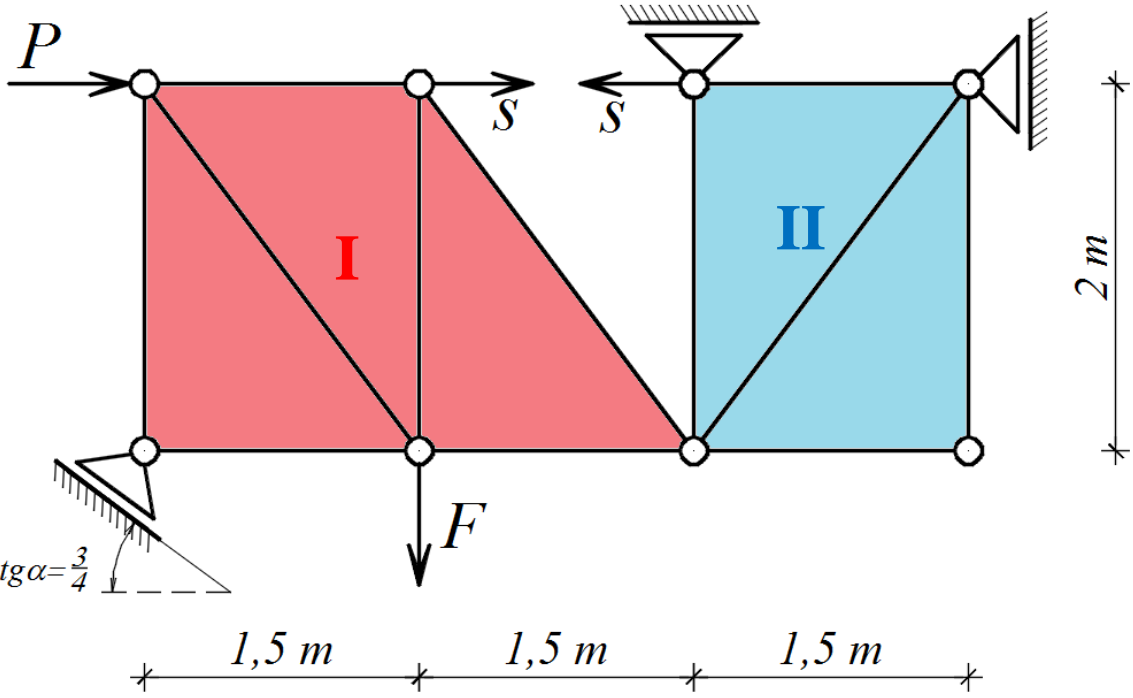






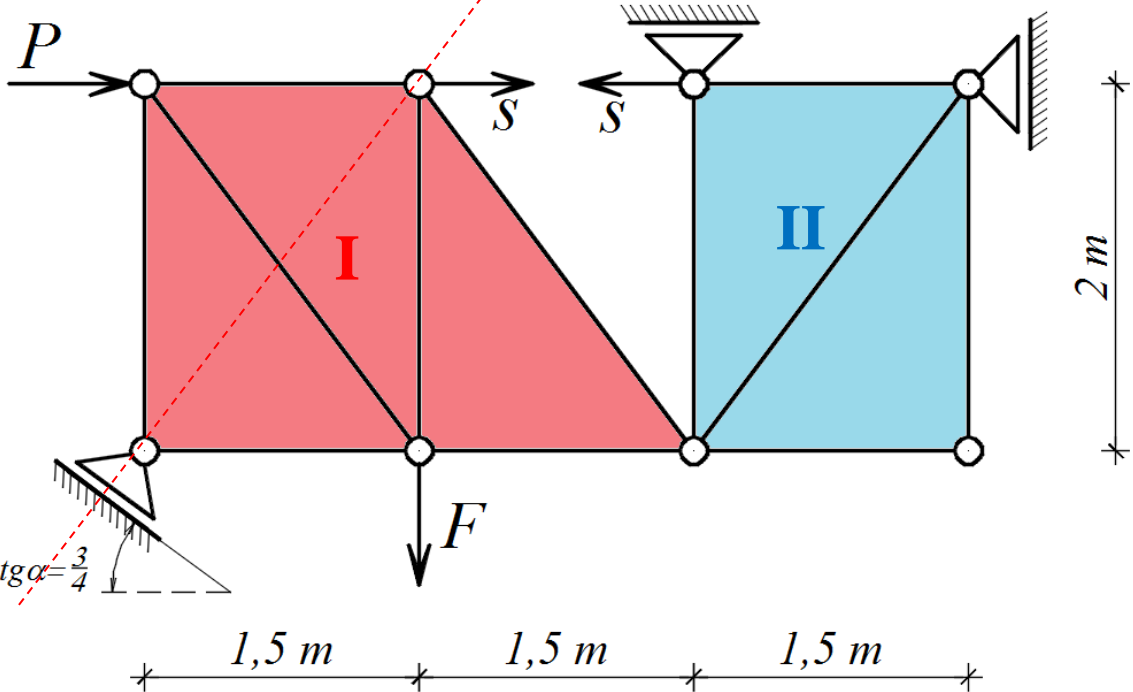


# Uvjeti spojeva tijela s podlogom

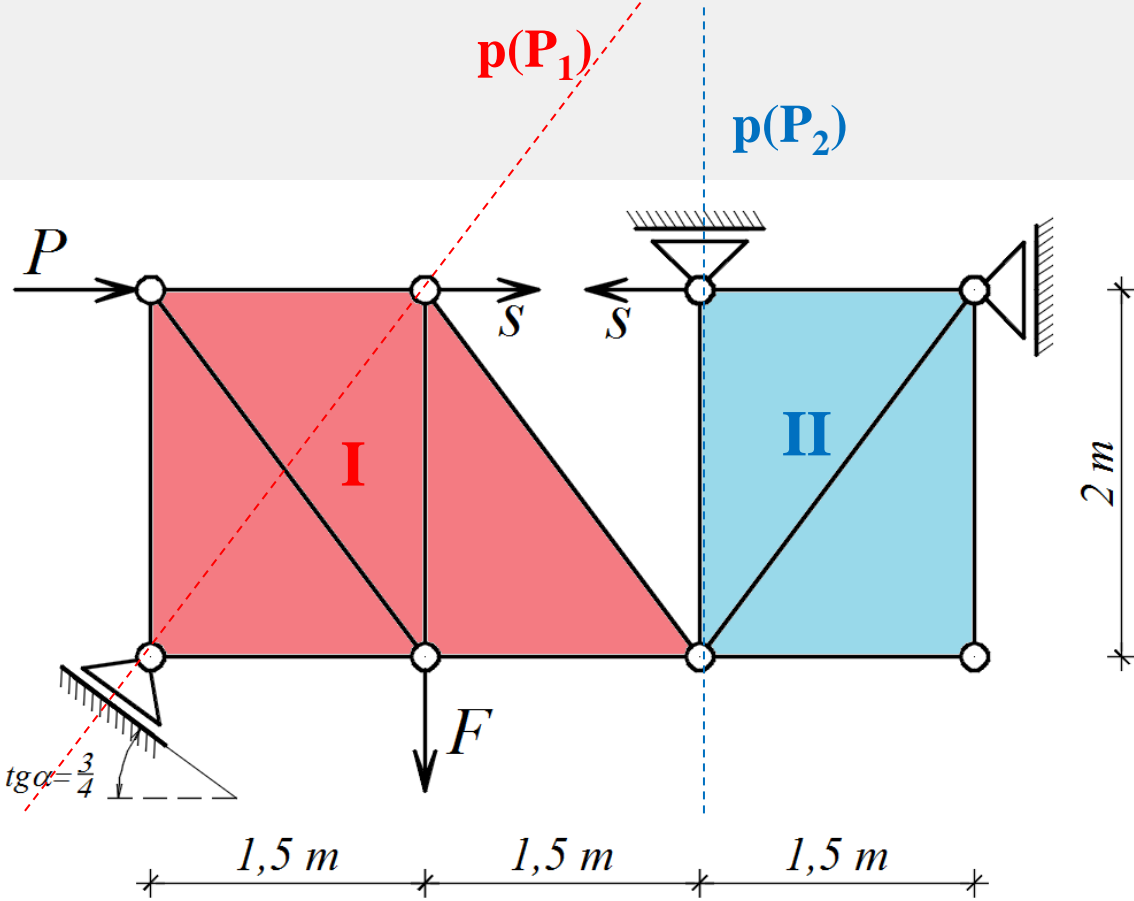


# Uvjeti spojeva tijela s podlogom

$p(P_1)$

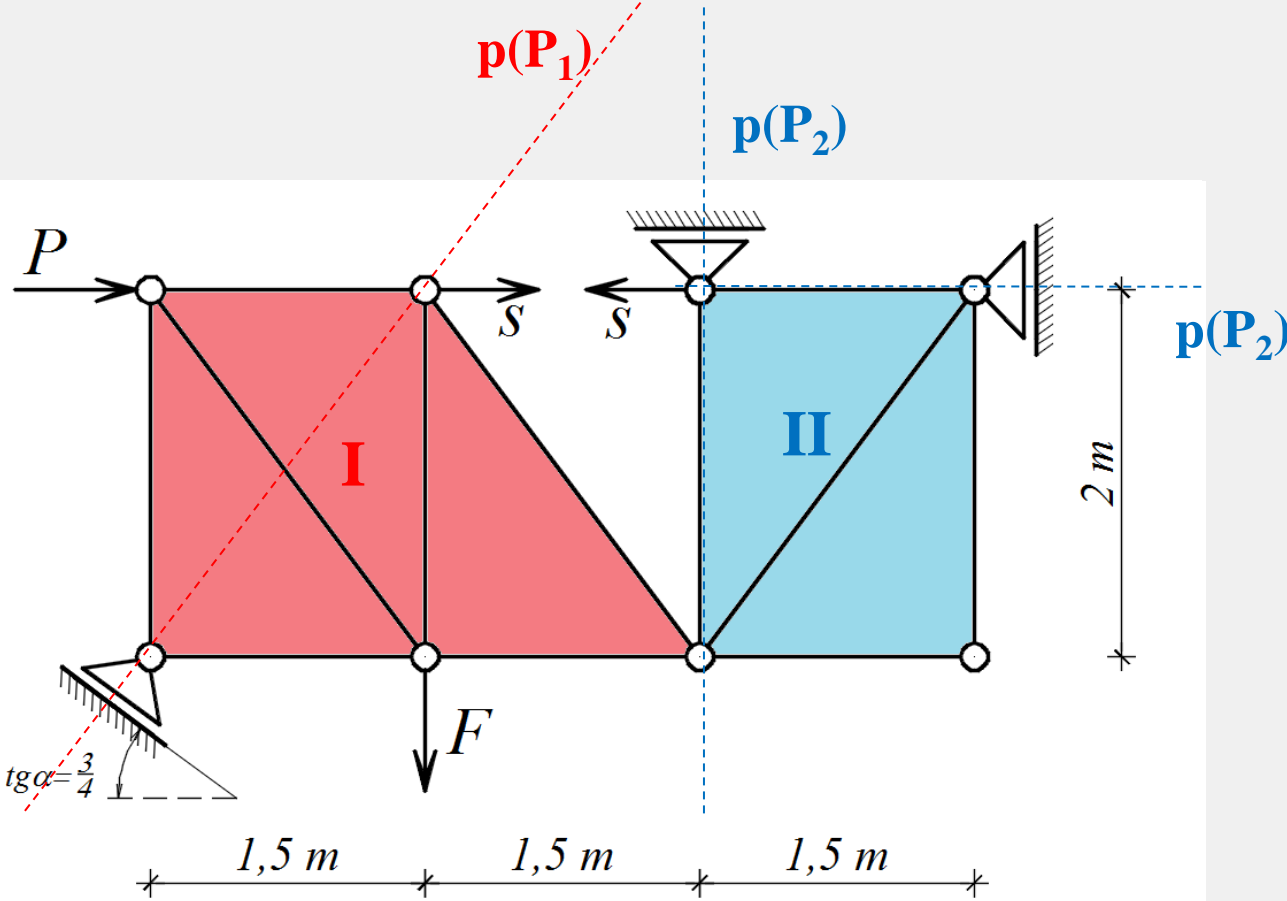


# Uvjeti spojeva tijela s podlogom

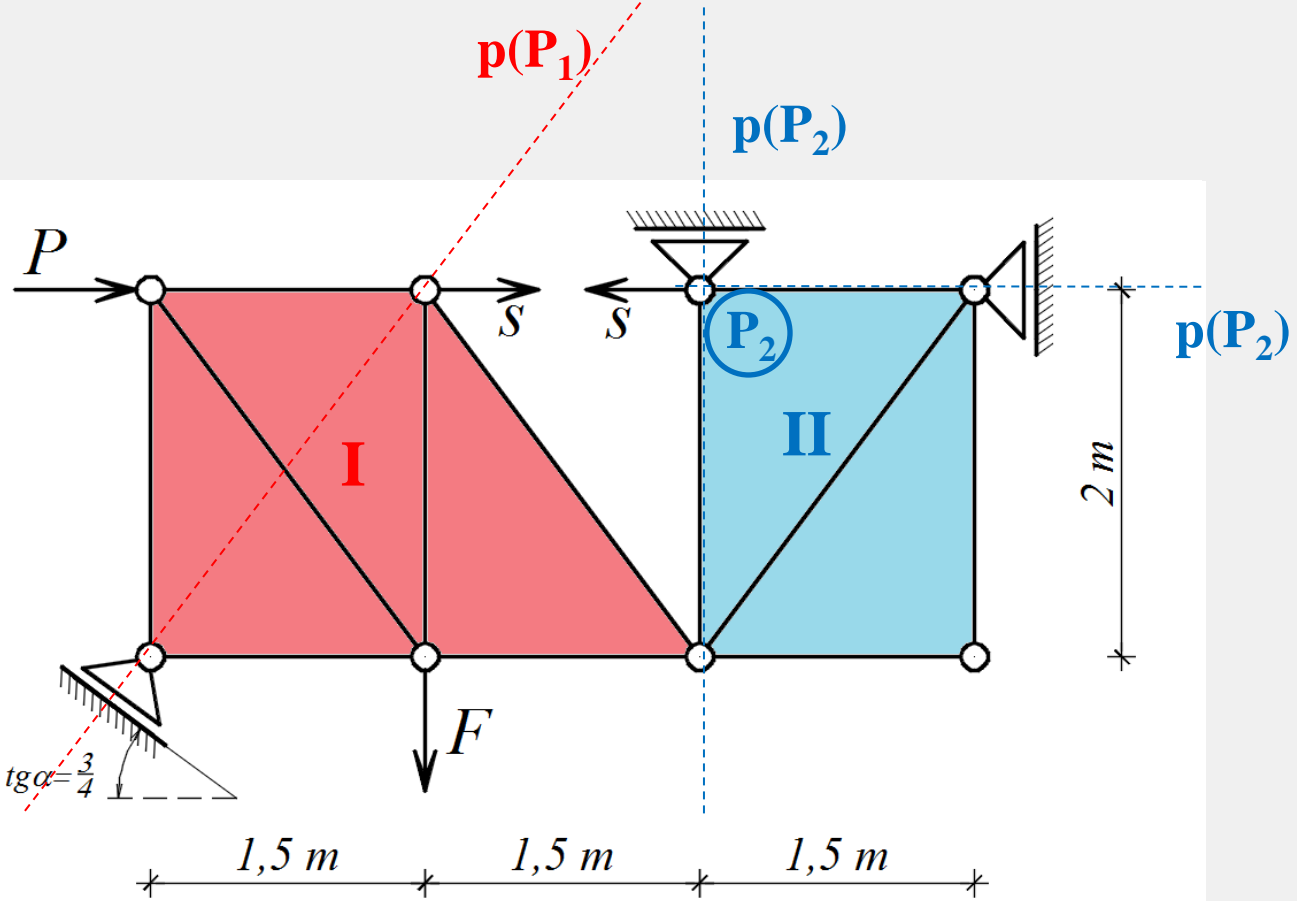


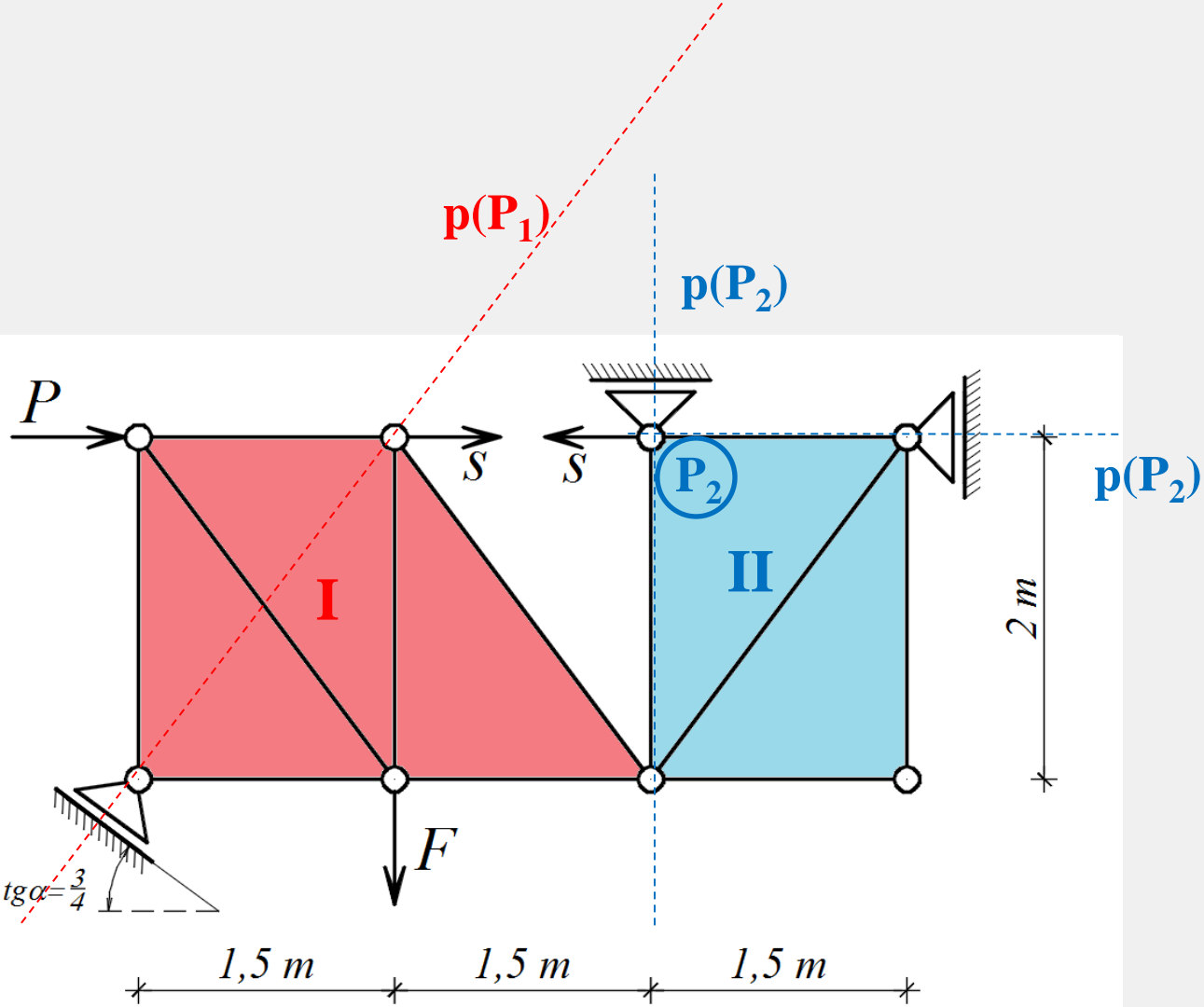


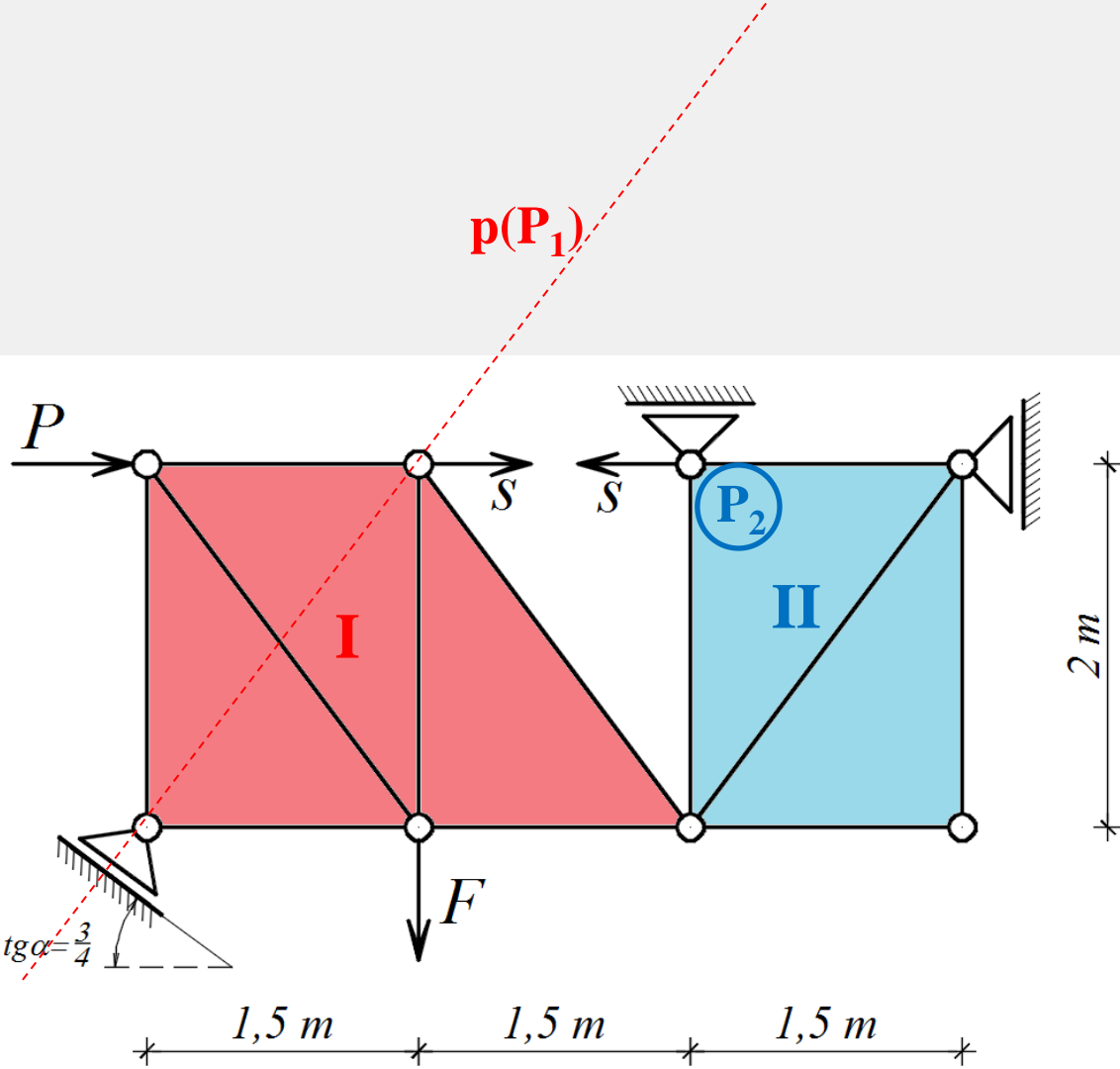
# Uvjeti spojeva tijela s podlogom



# Uvjeti spojeva tijela s podlogom





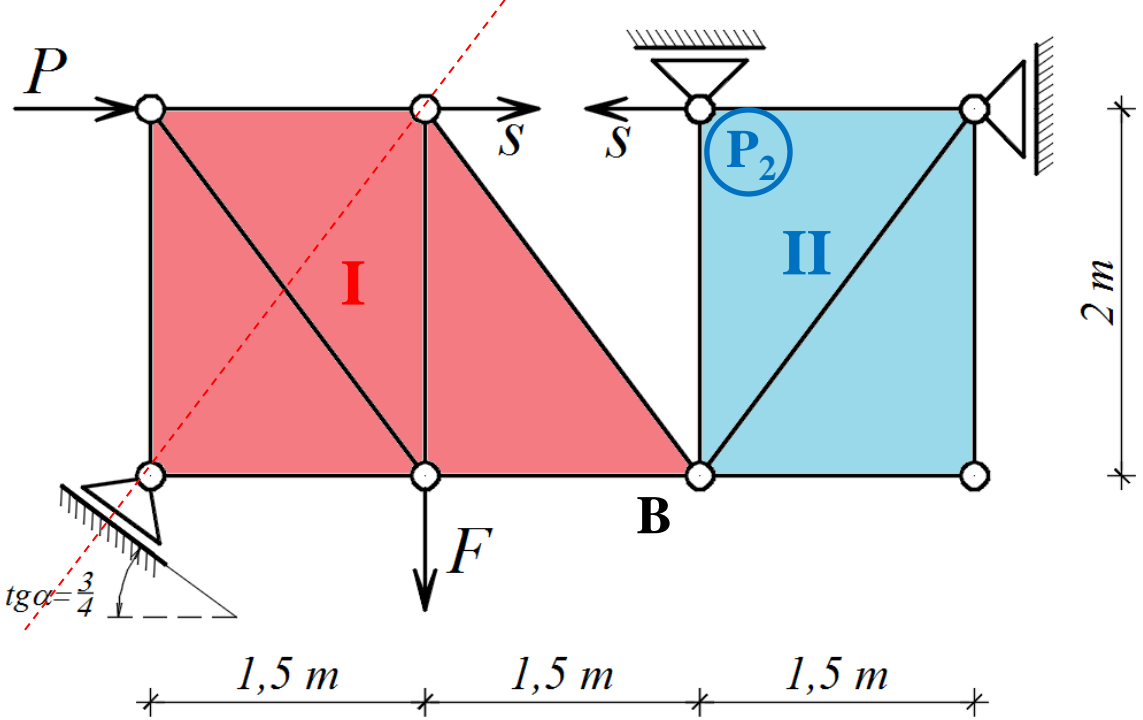


# Uvjet spoja tijela I i II

$$dx_B^I = dx_B^{II}$$

$$dy_B^I = dy_B^{II}$$

$p(P_1)$

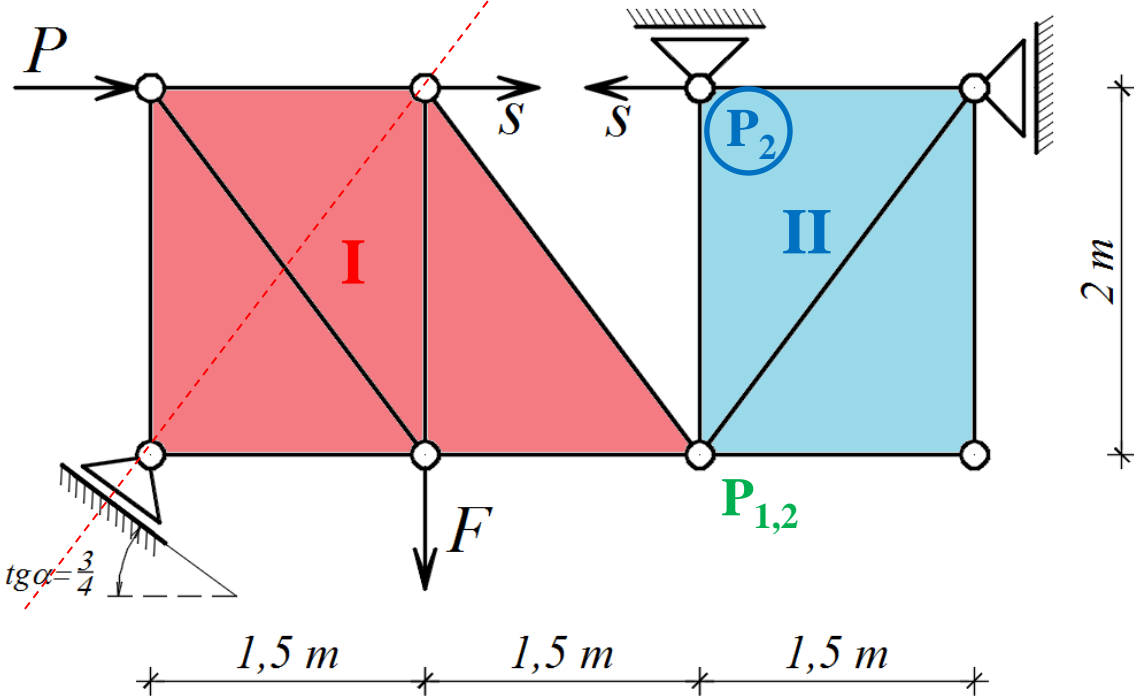


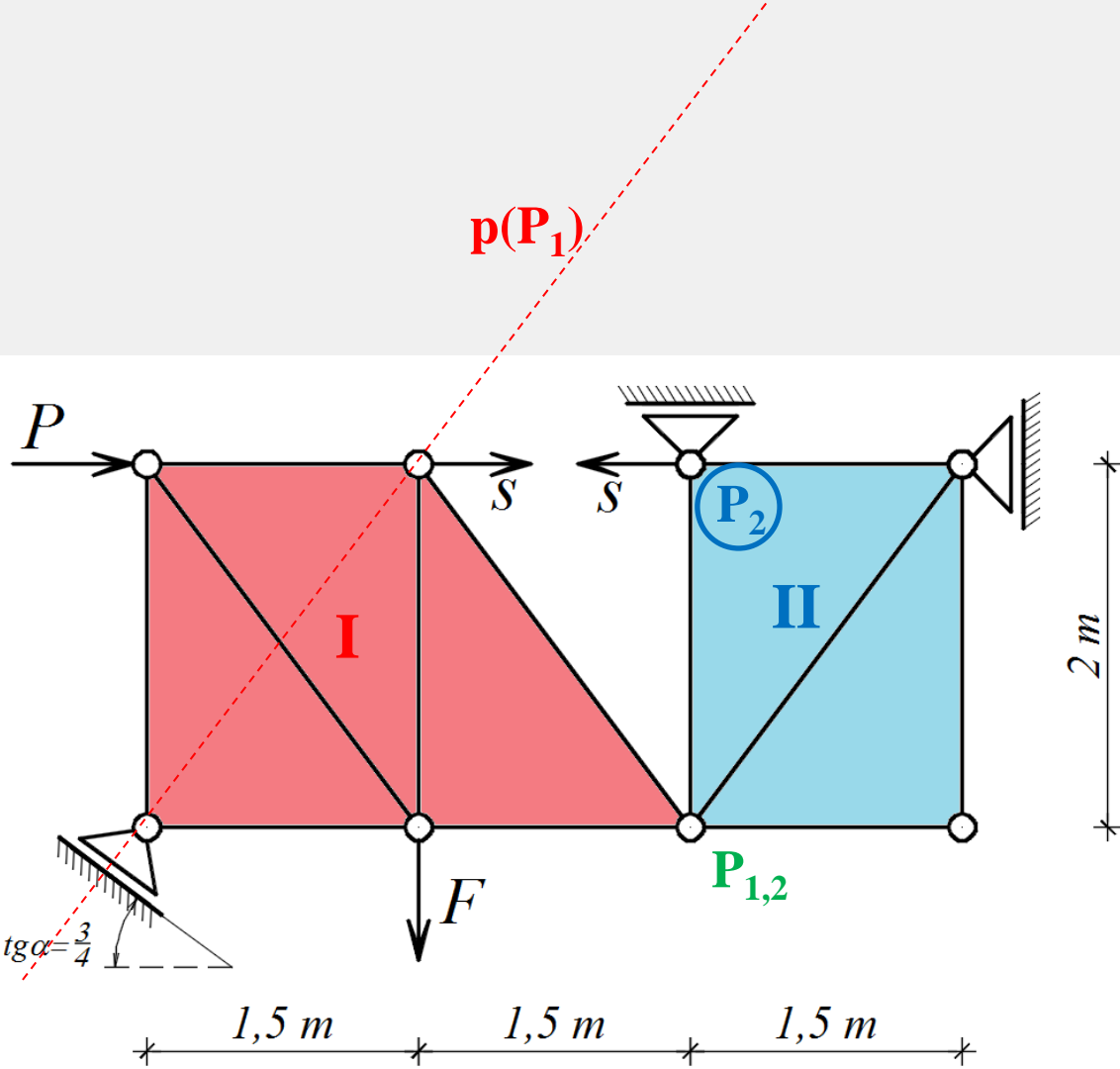
# Uvjet spoja tijela I i II

$$dx_B^I = dx_B^{II}$$

$$dy_B^I = dy_B^{II}$$

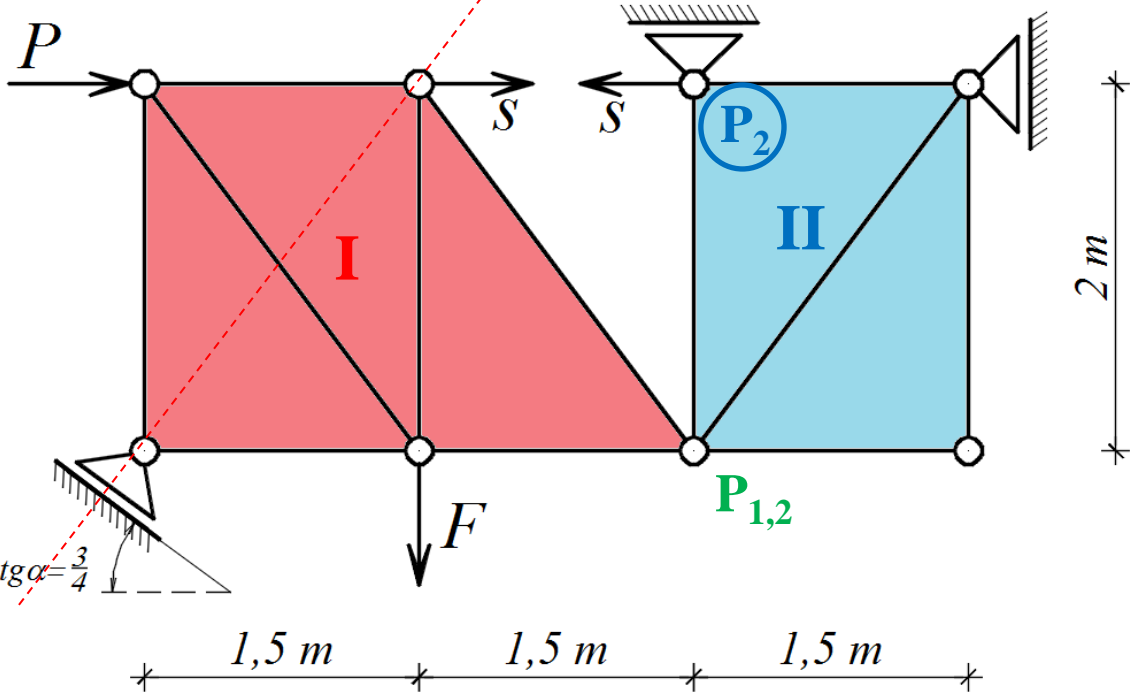
$p(P_1)$





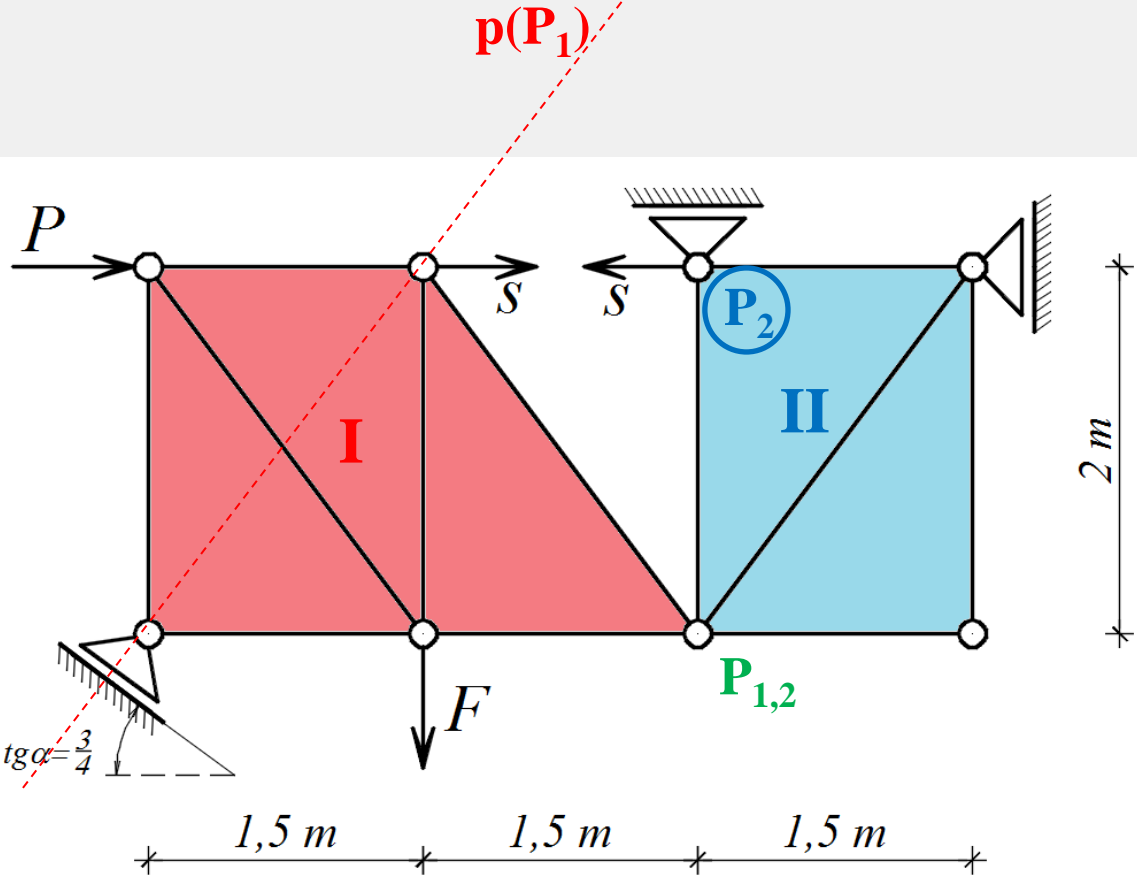
# Kennedy teorem

$p(P_1)$

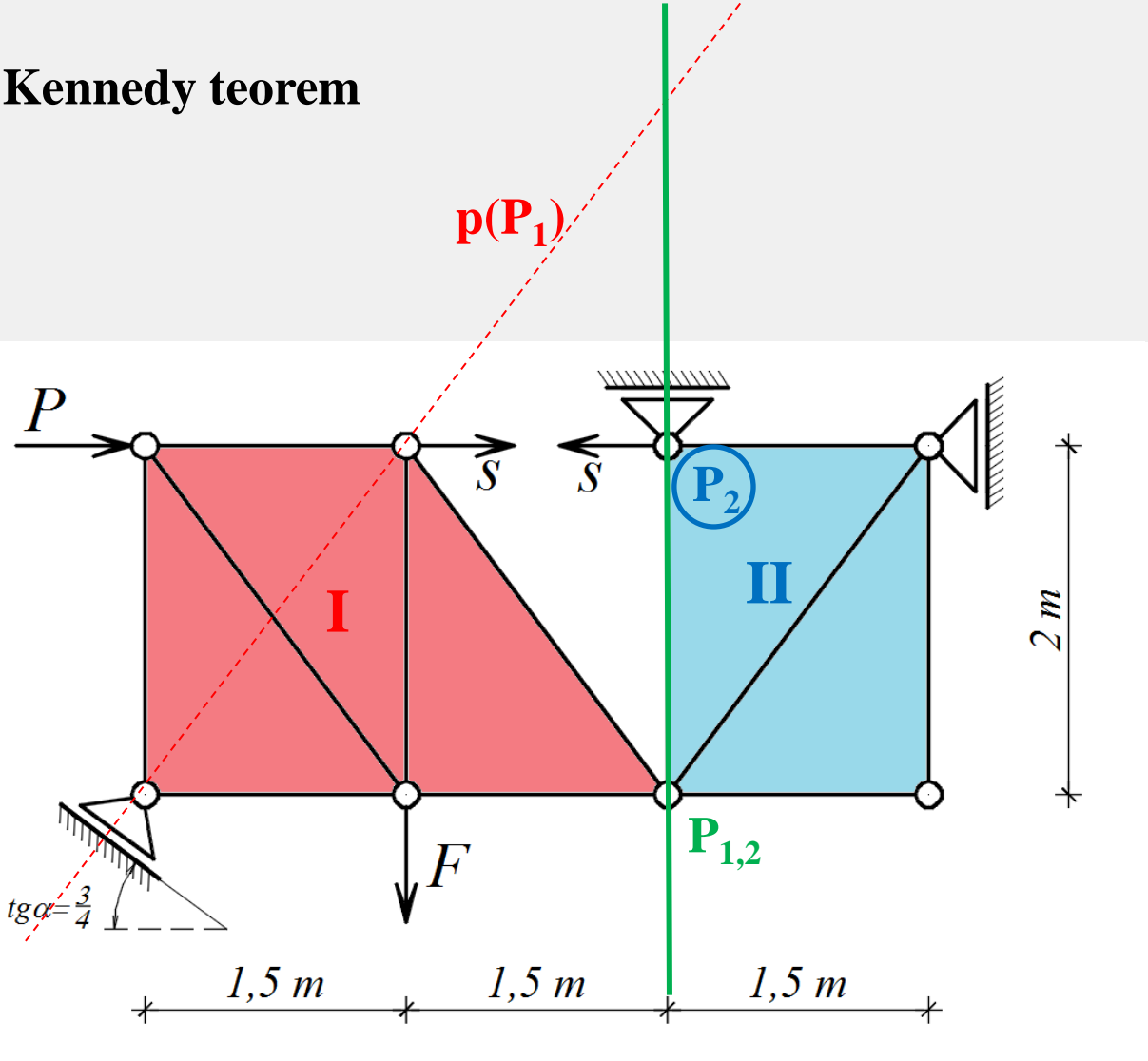




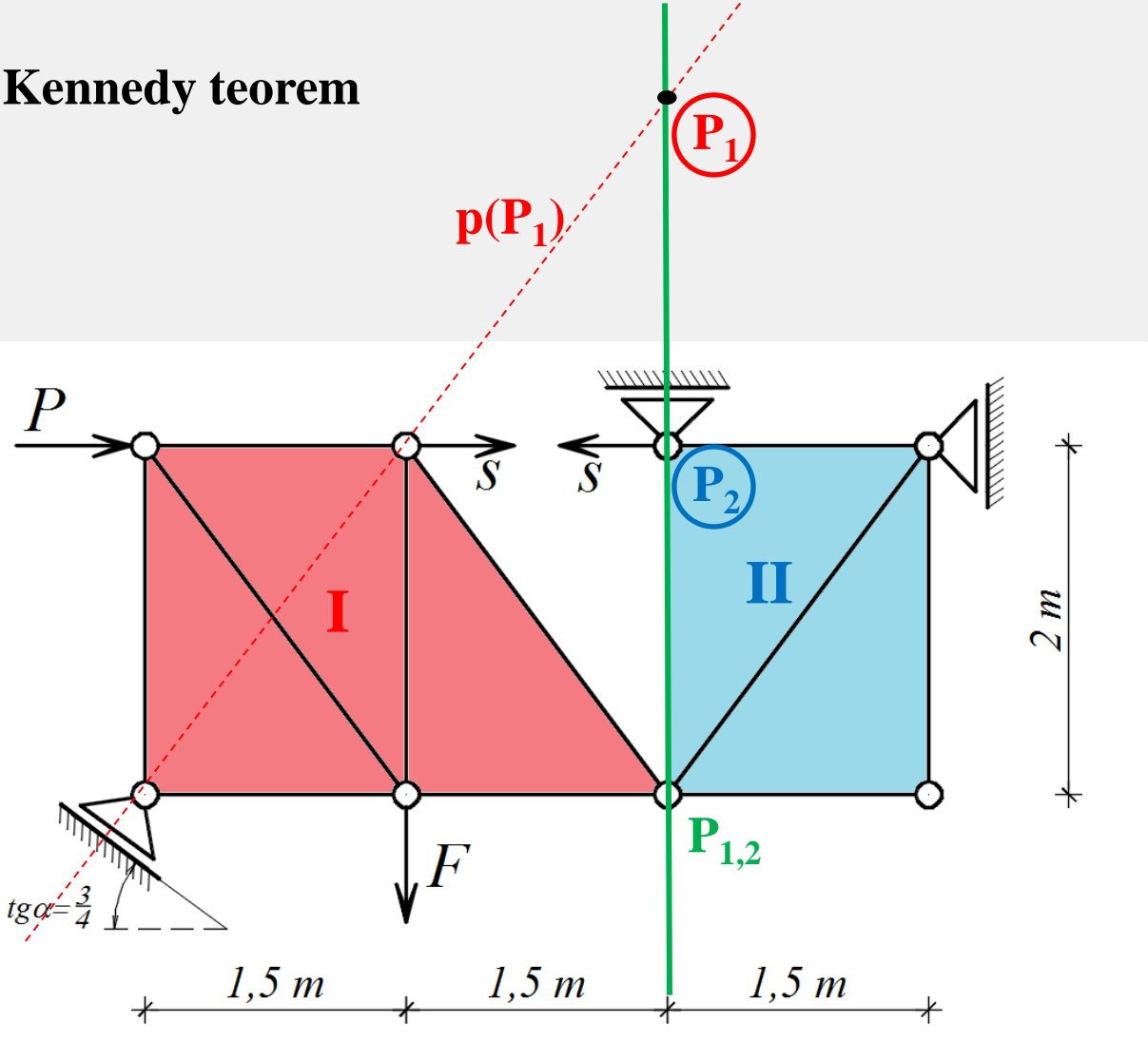
# Kennedy teorem

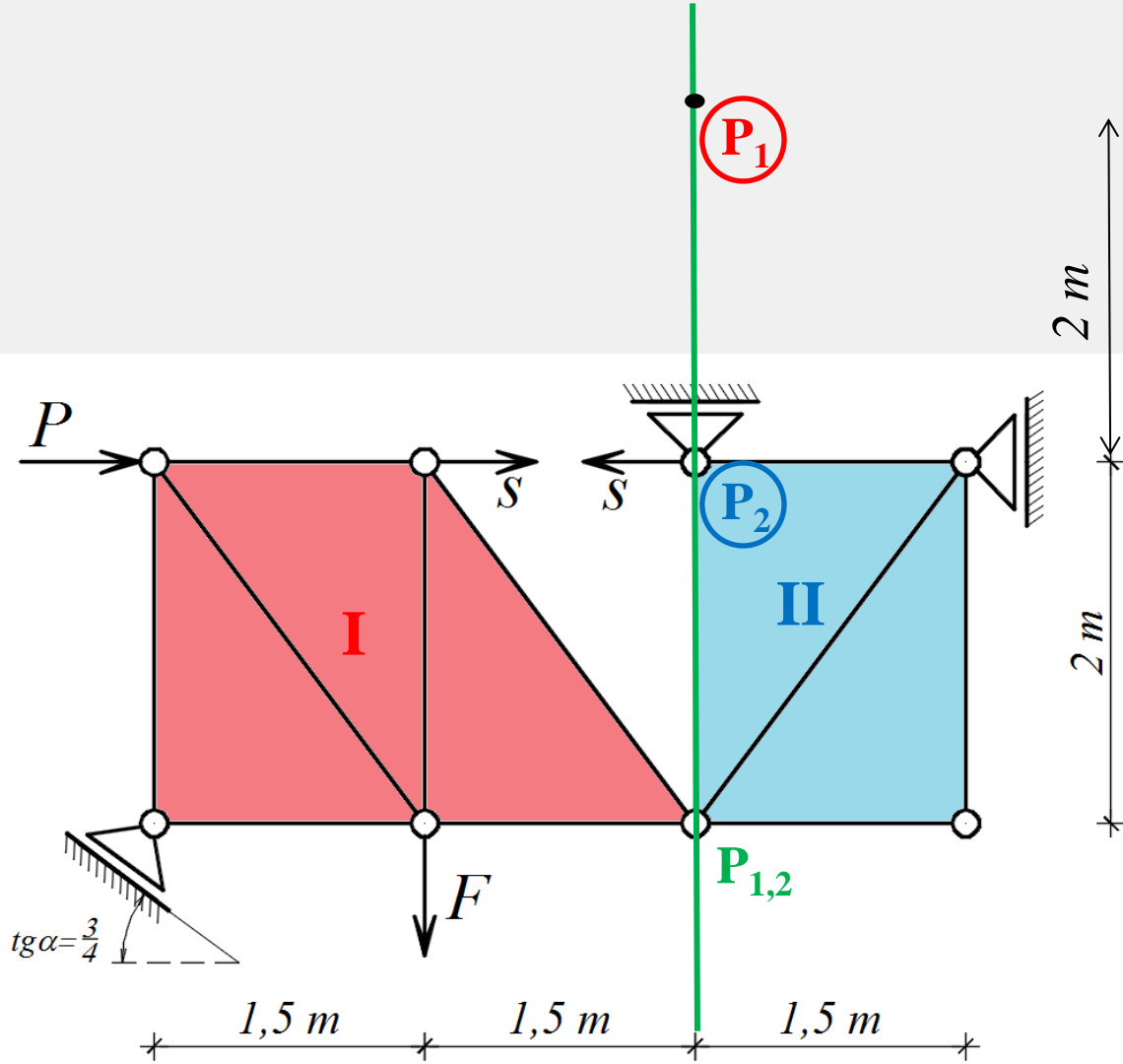


# Kennedy teorem

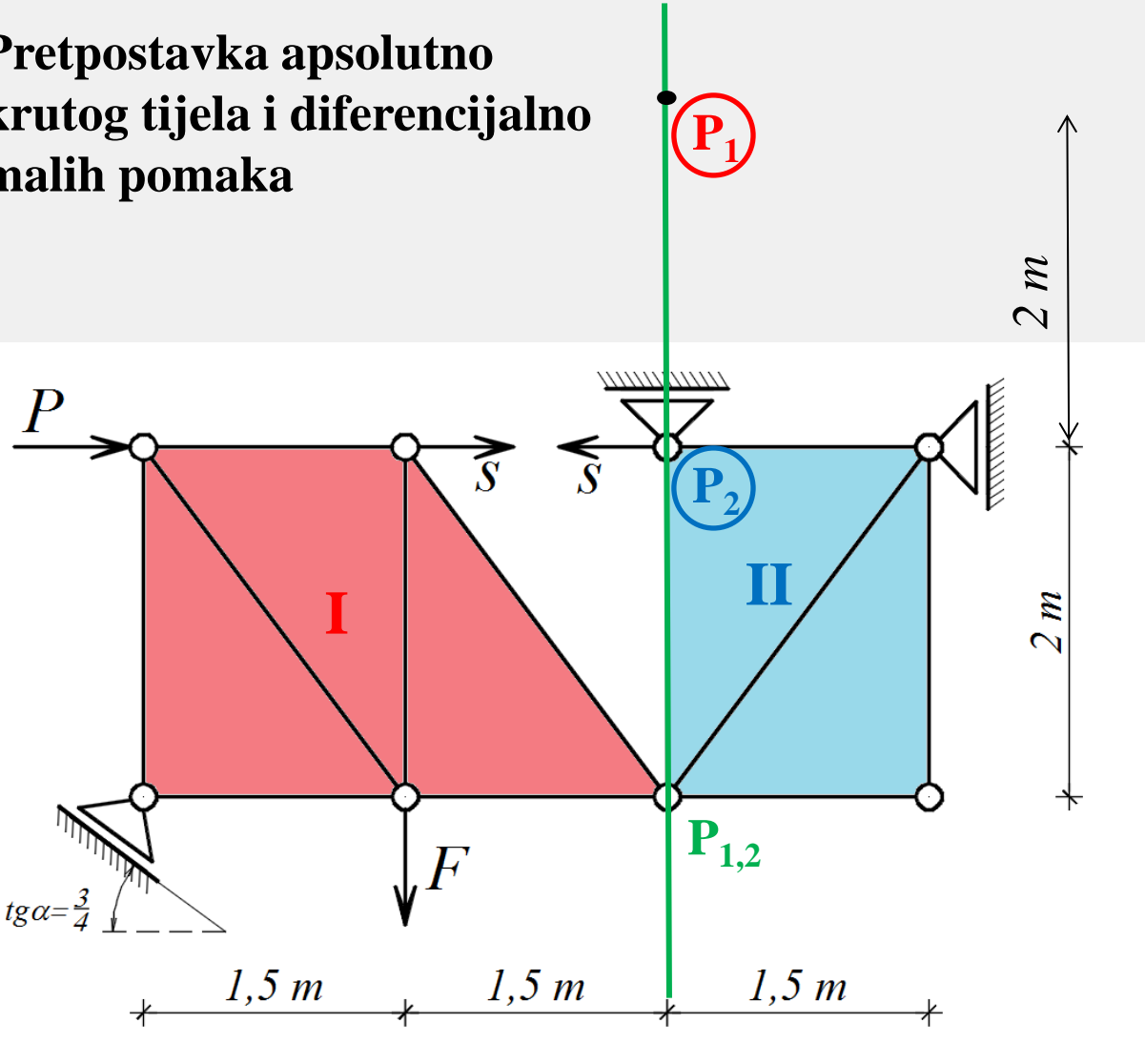


# Kennedy teorem

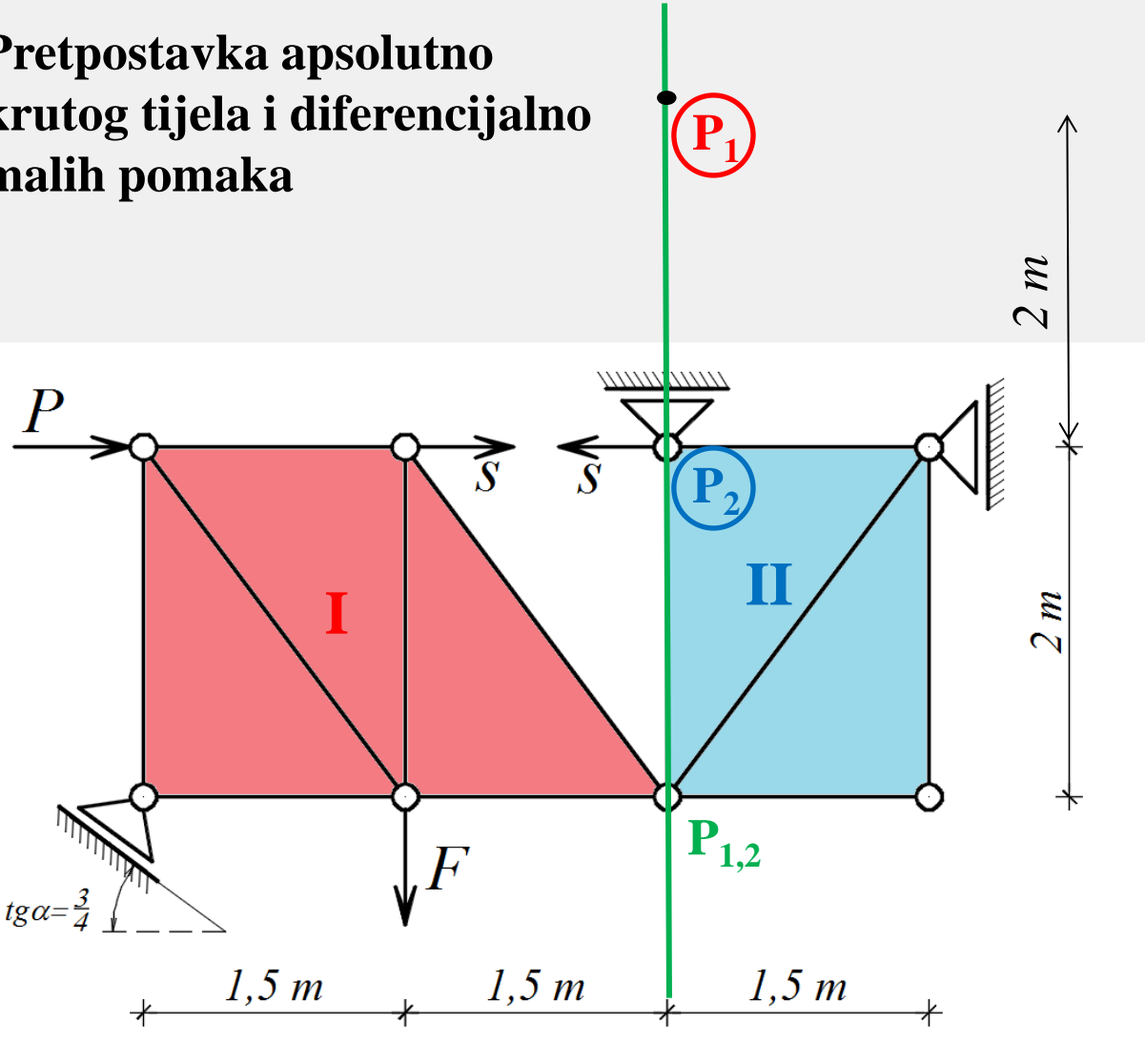




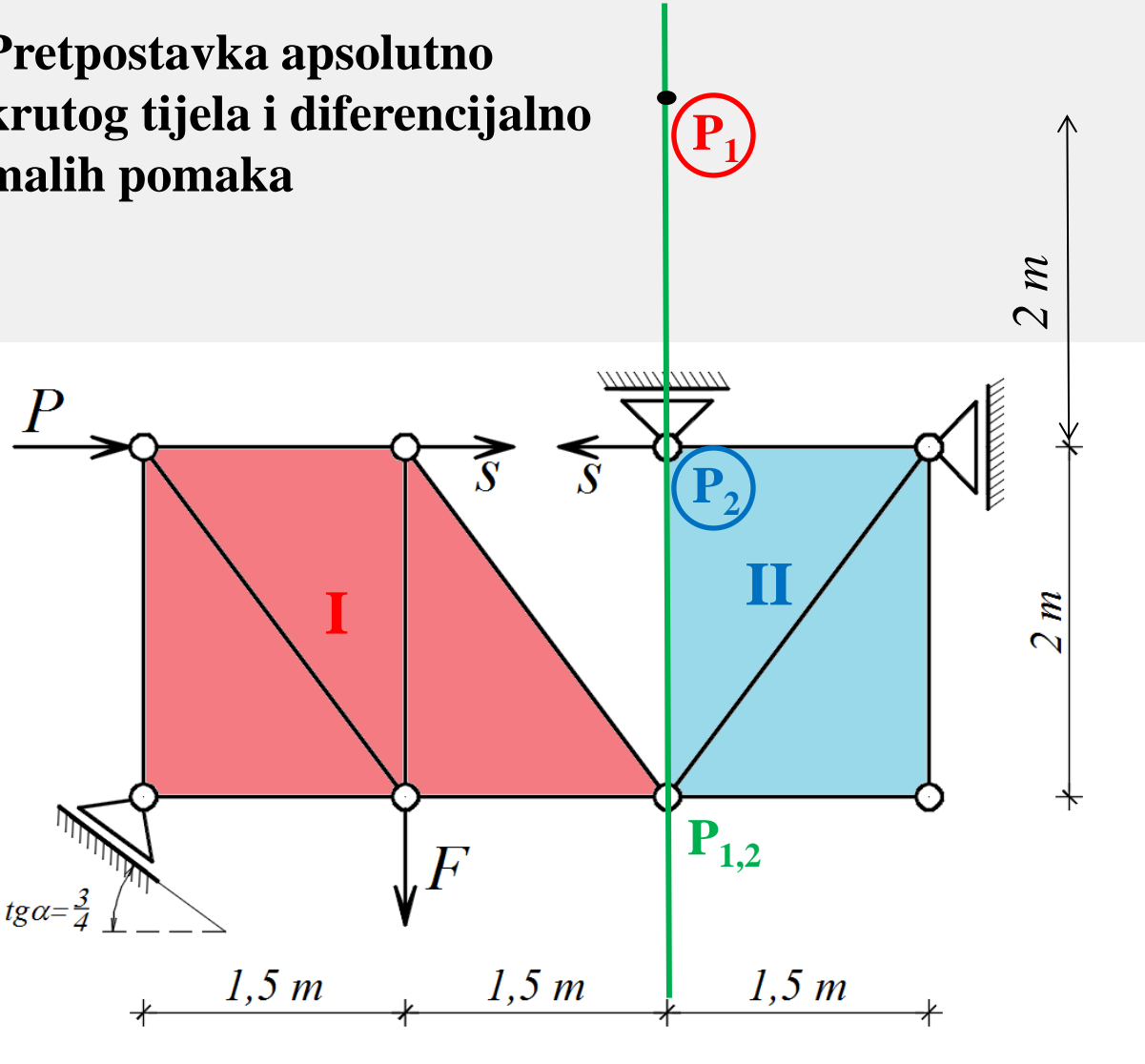
# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka



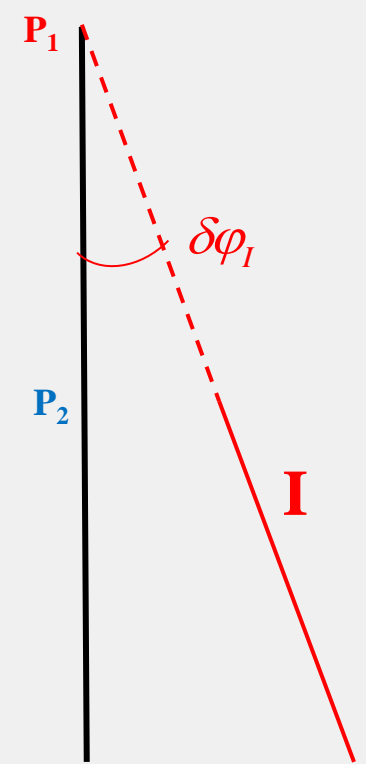
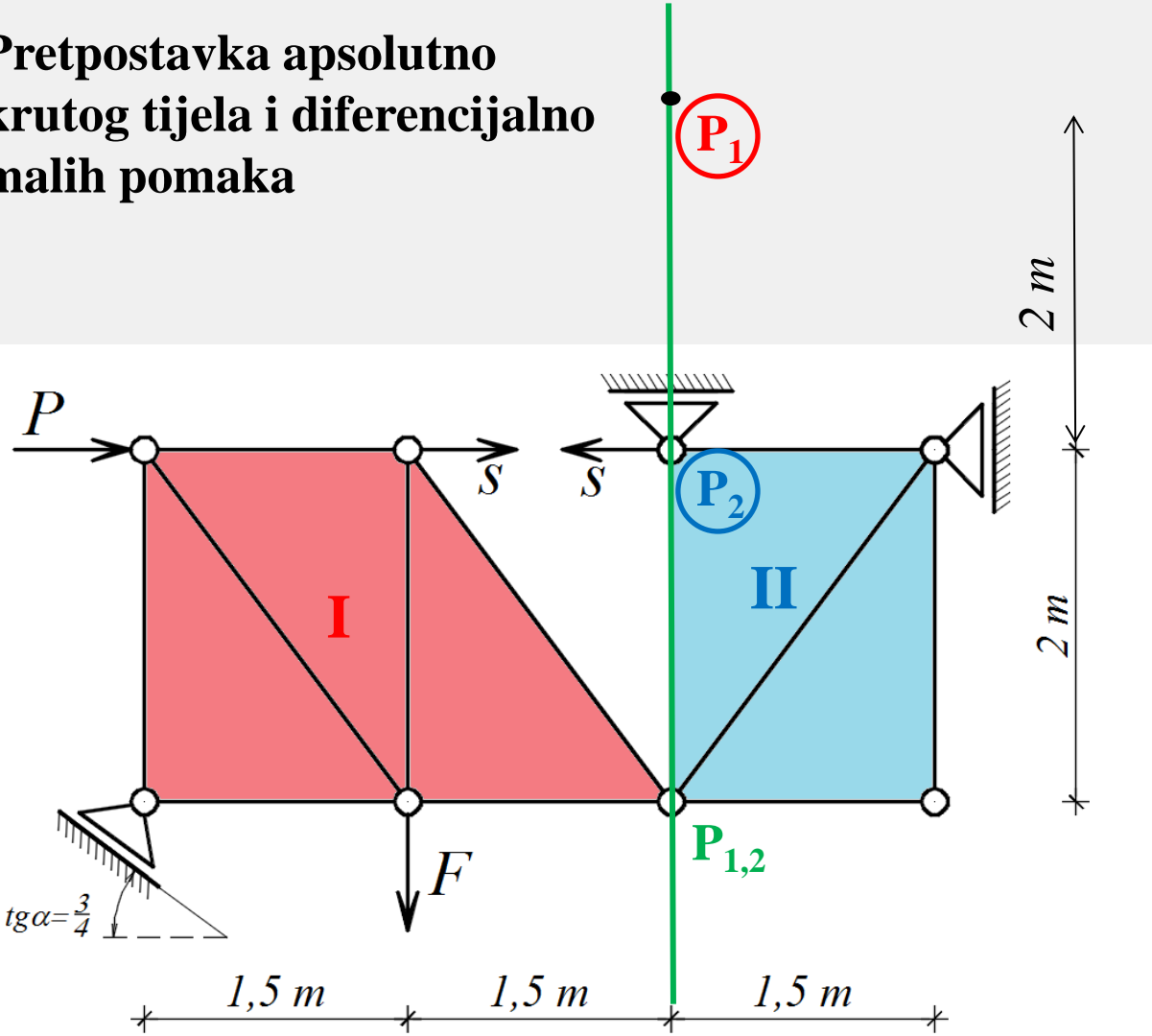
# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka



# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka



# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka

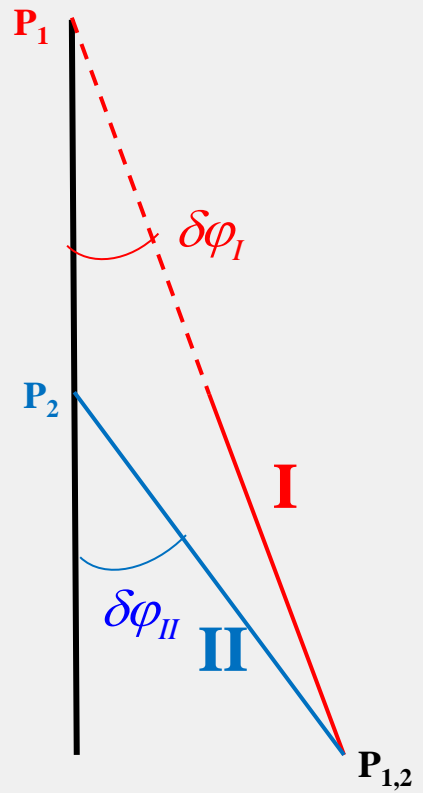
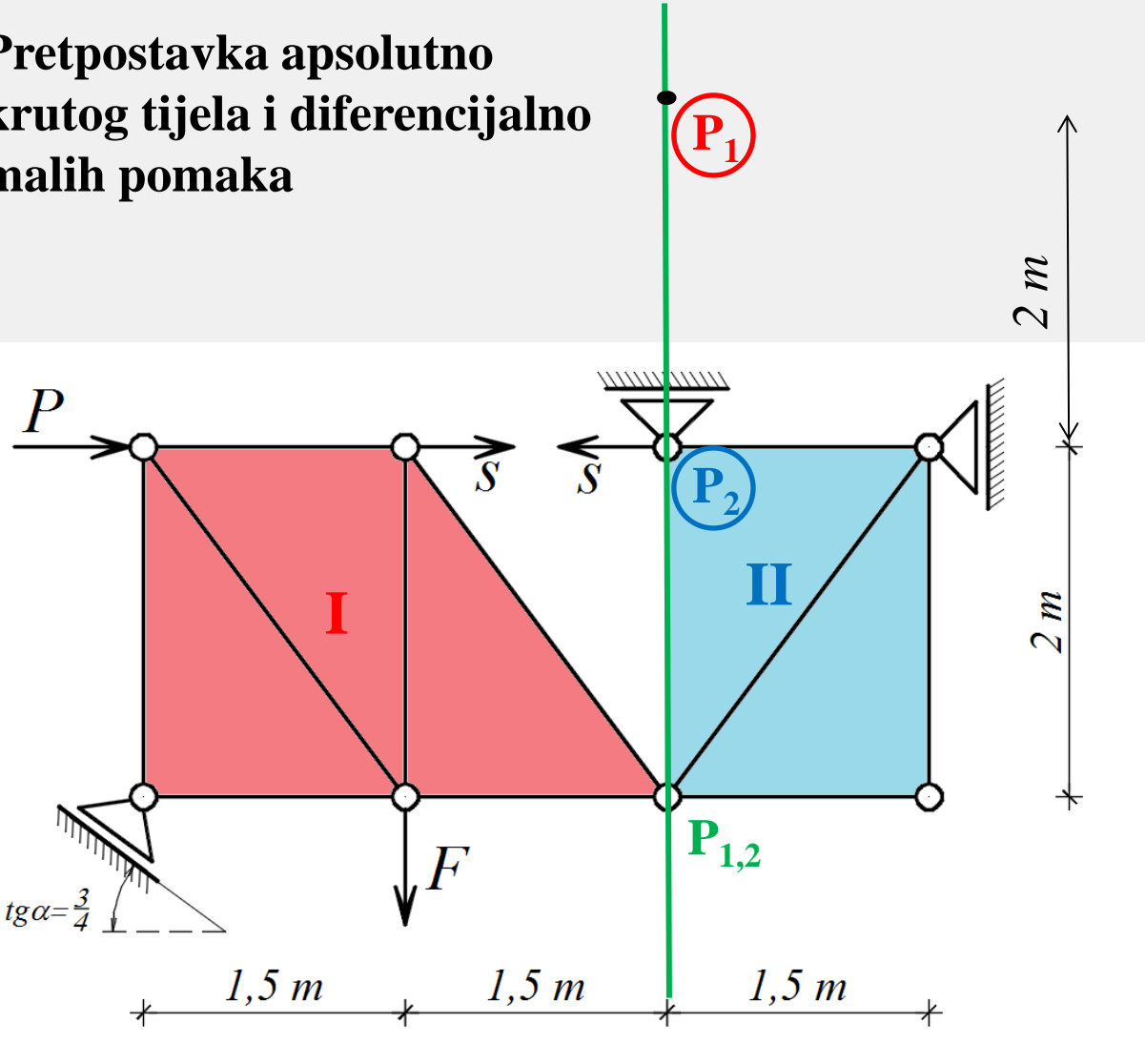






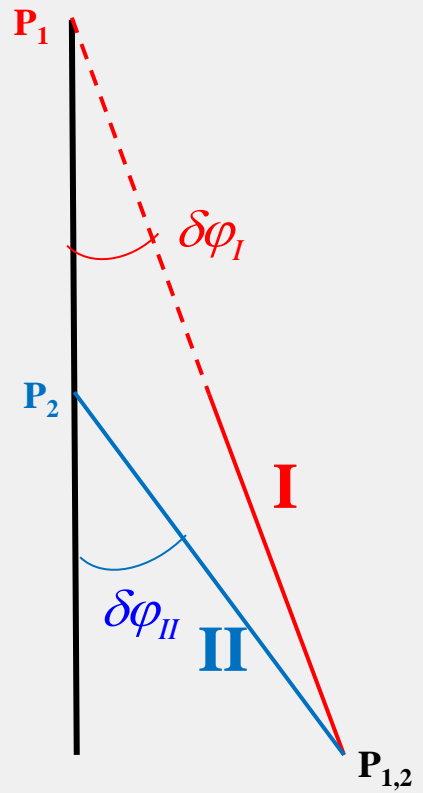
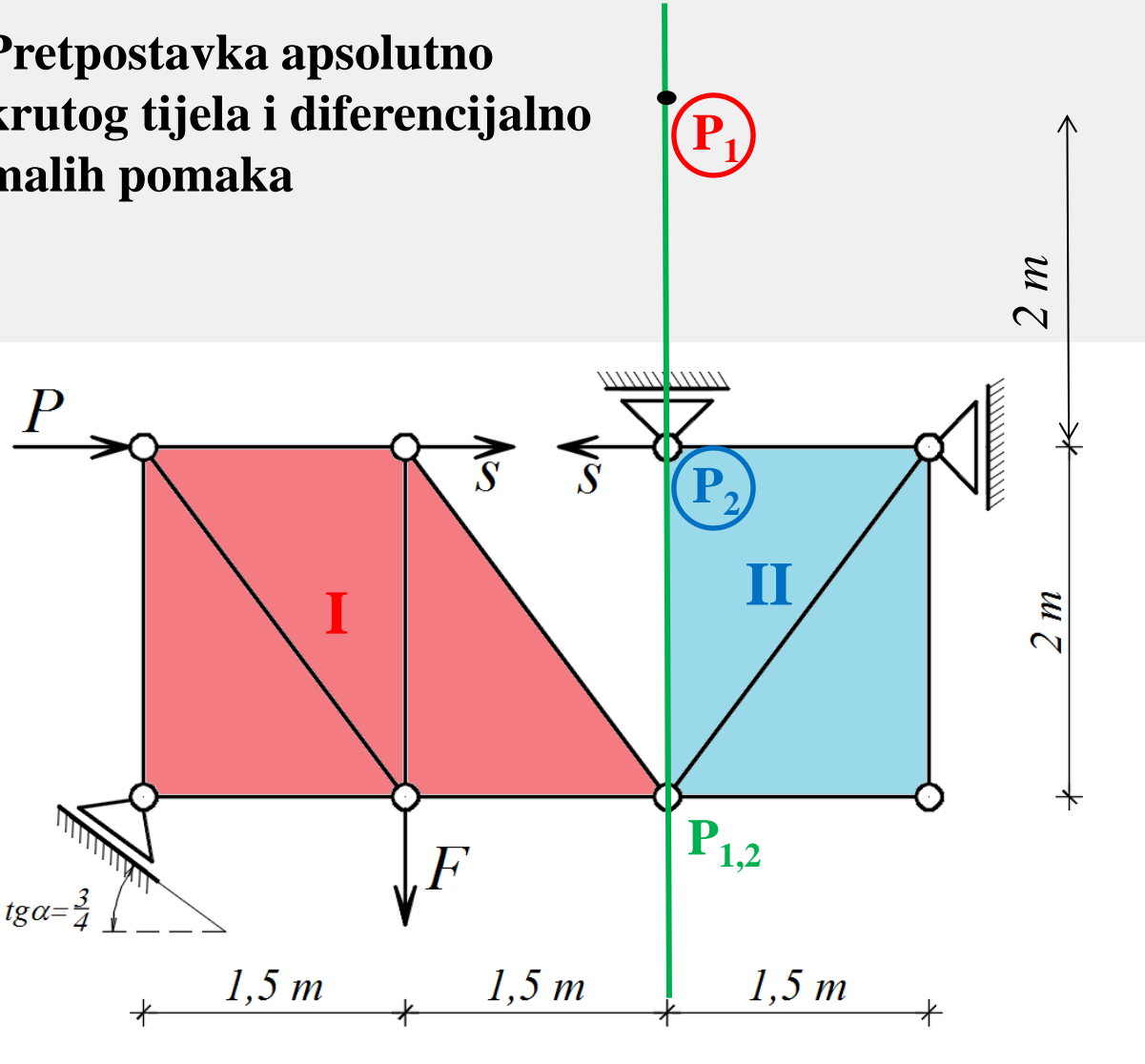


# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka



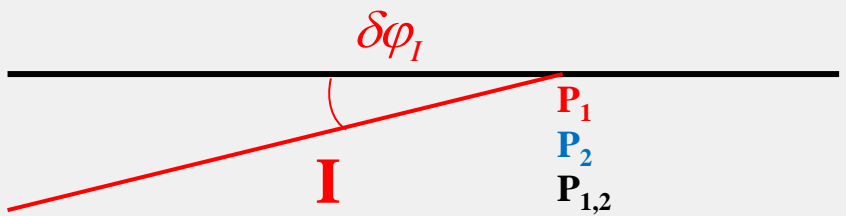
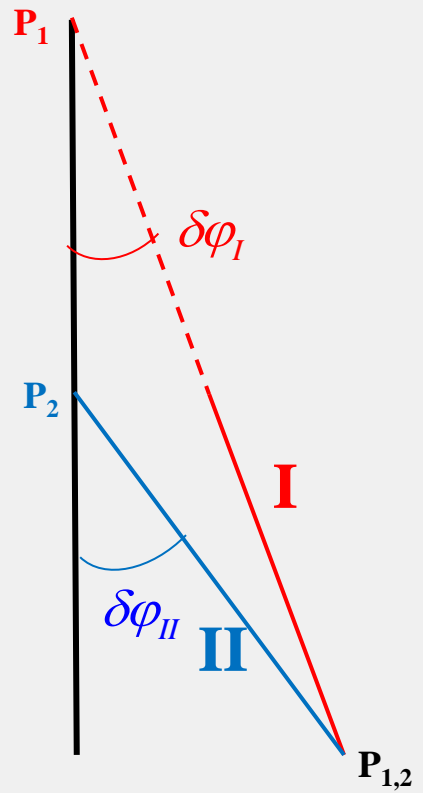
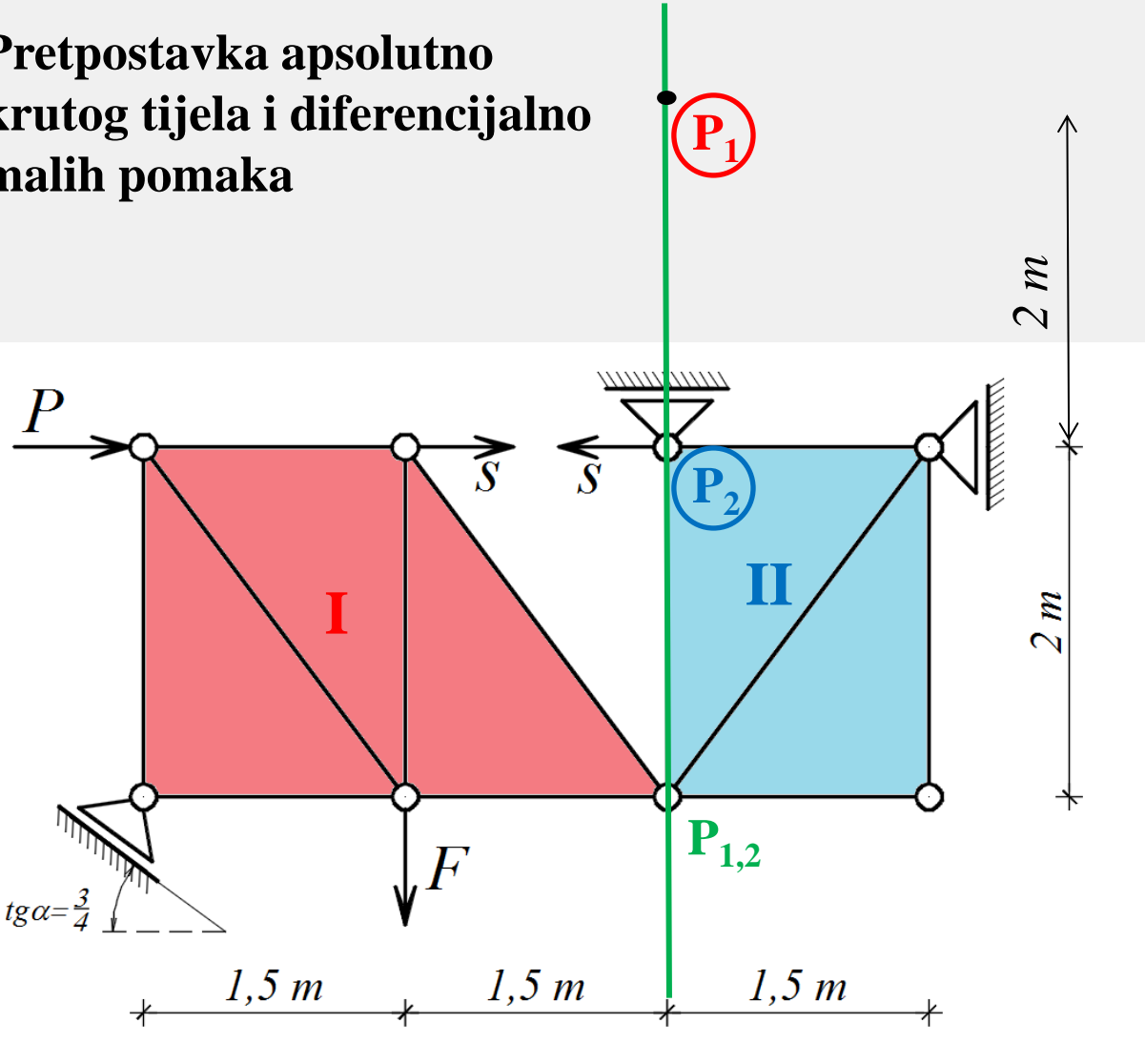
$P_1$   
 $P_2$   
 $P_{1,2}$

# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka

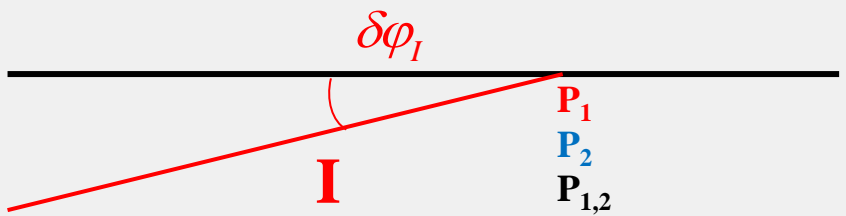
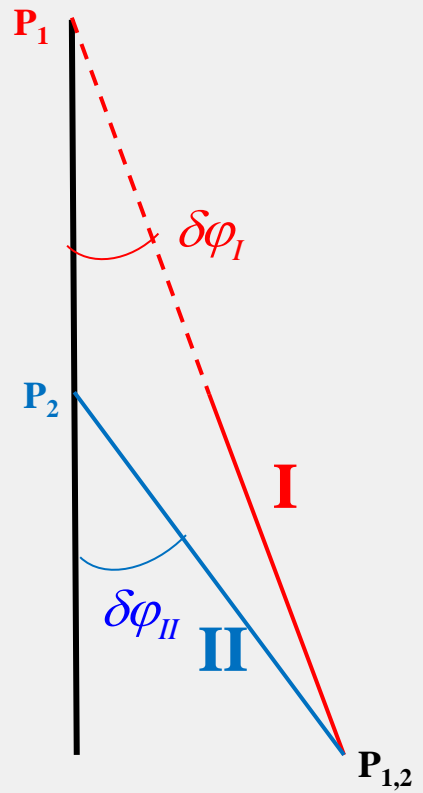
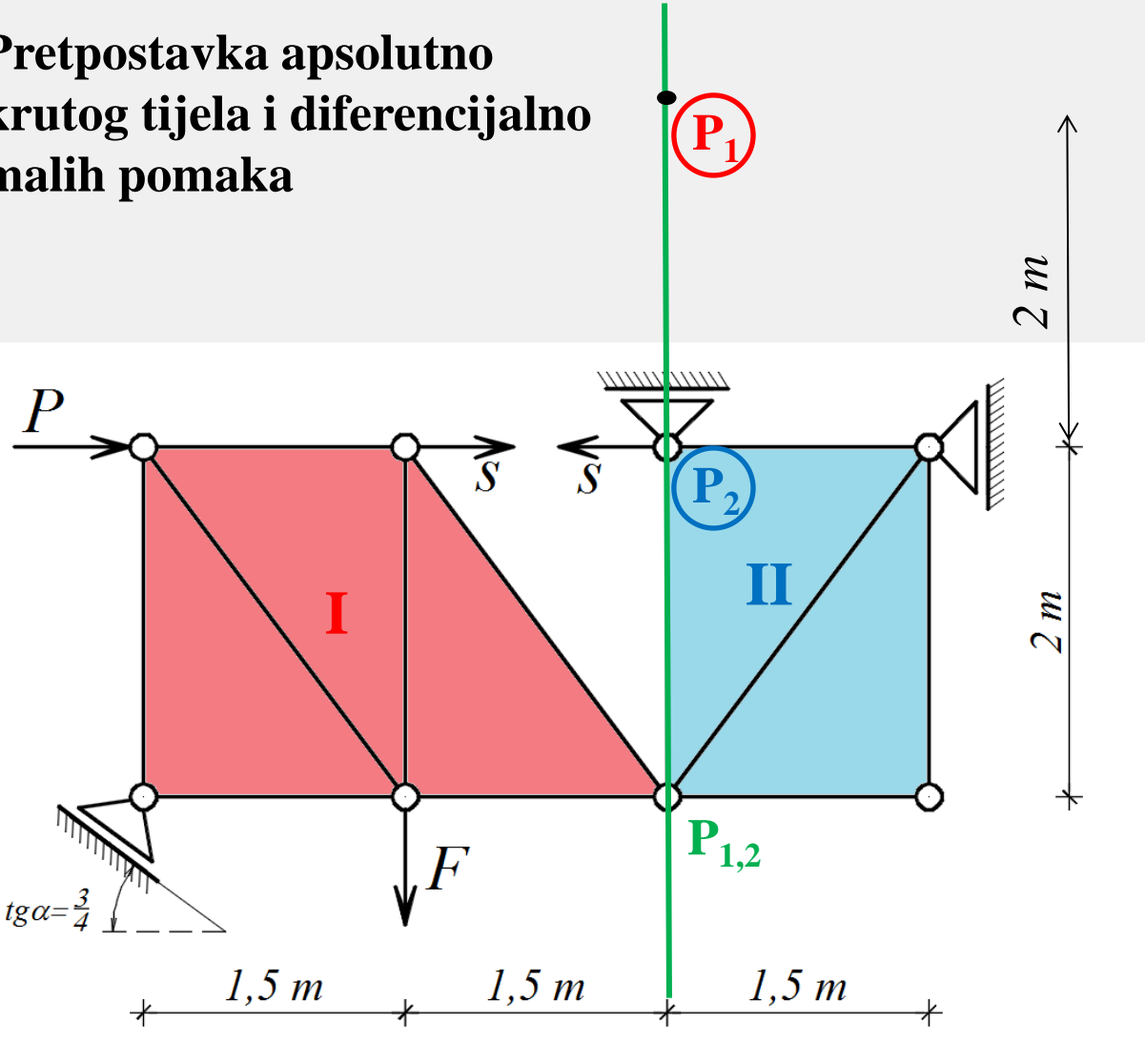


$P_1$   
 $P_2$   
 $P_{1,2}$

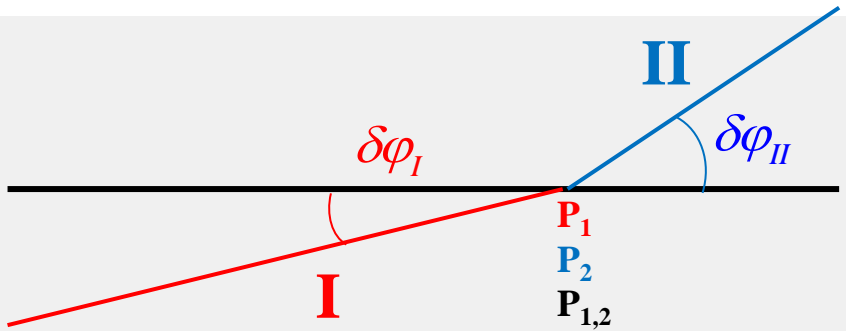
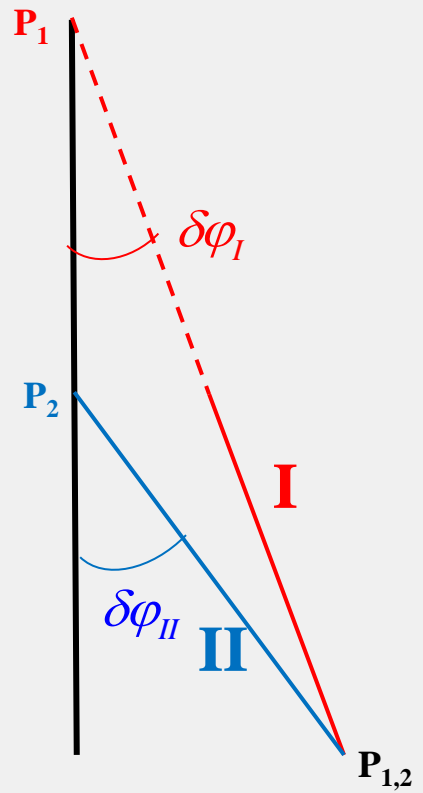
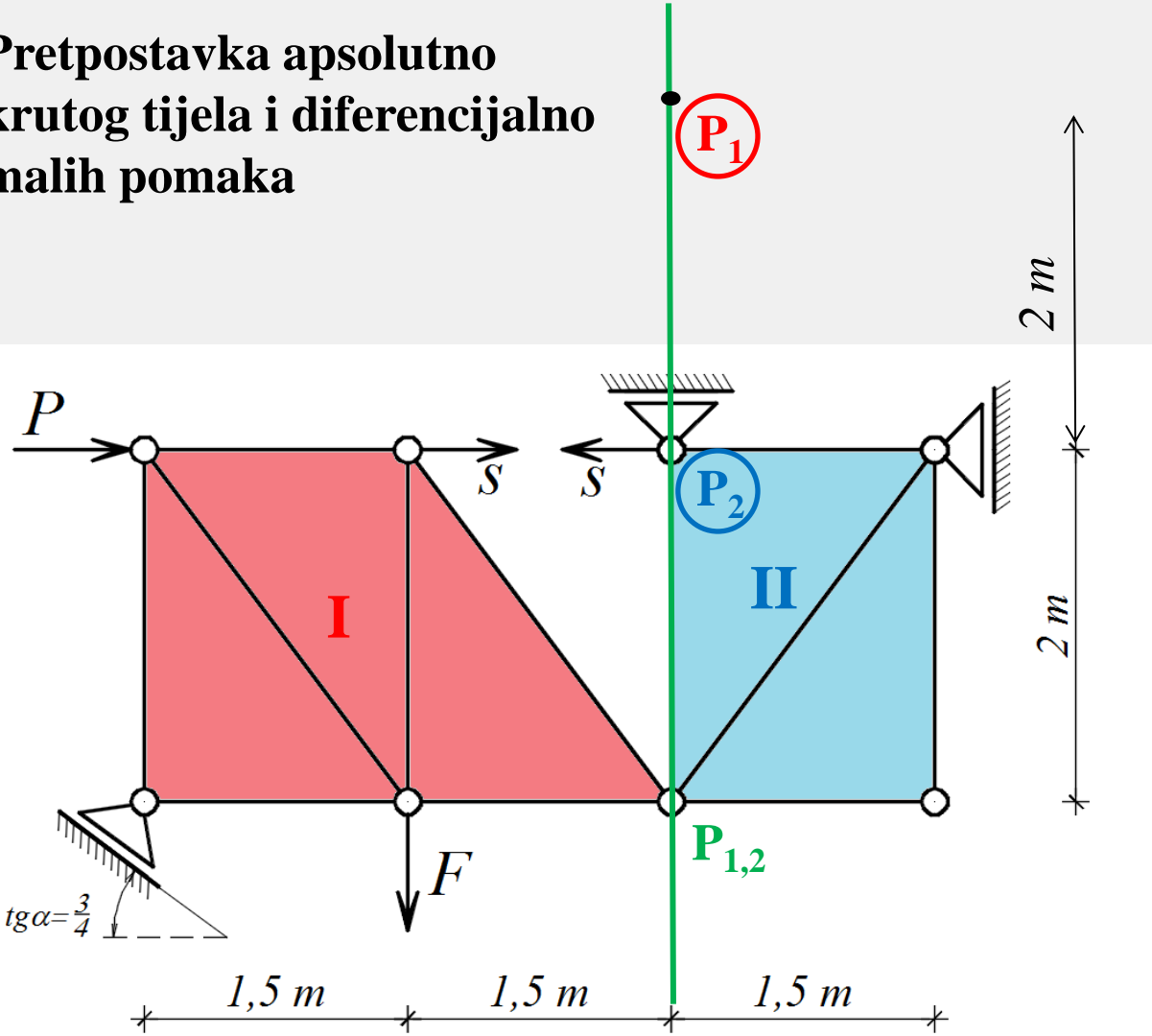
# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka



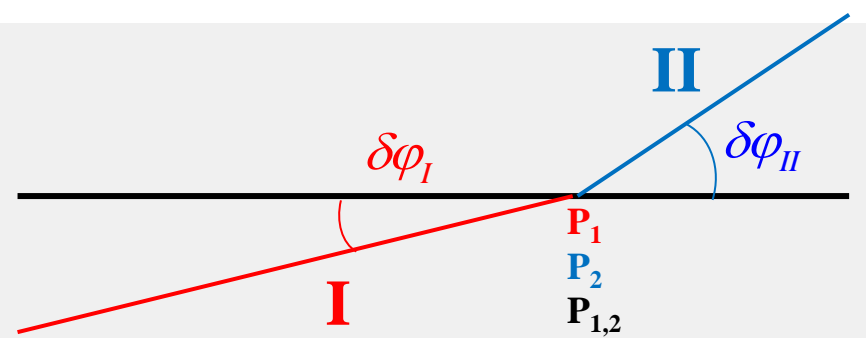
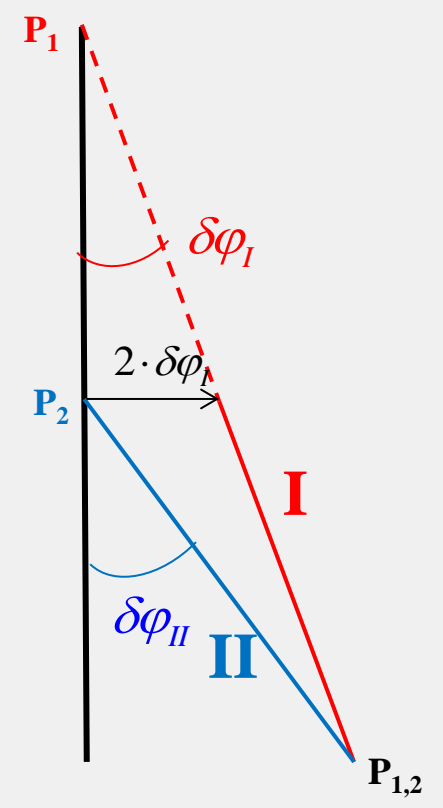
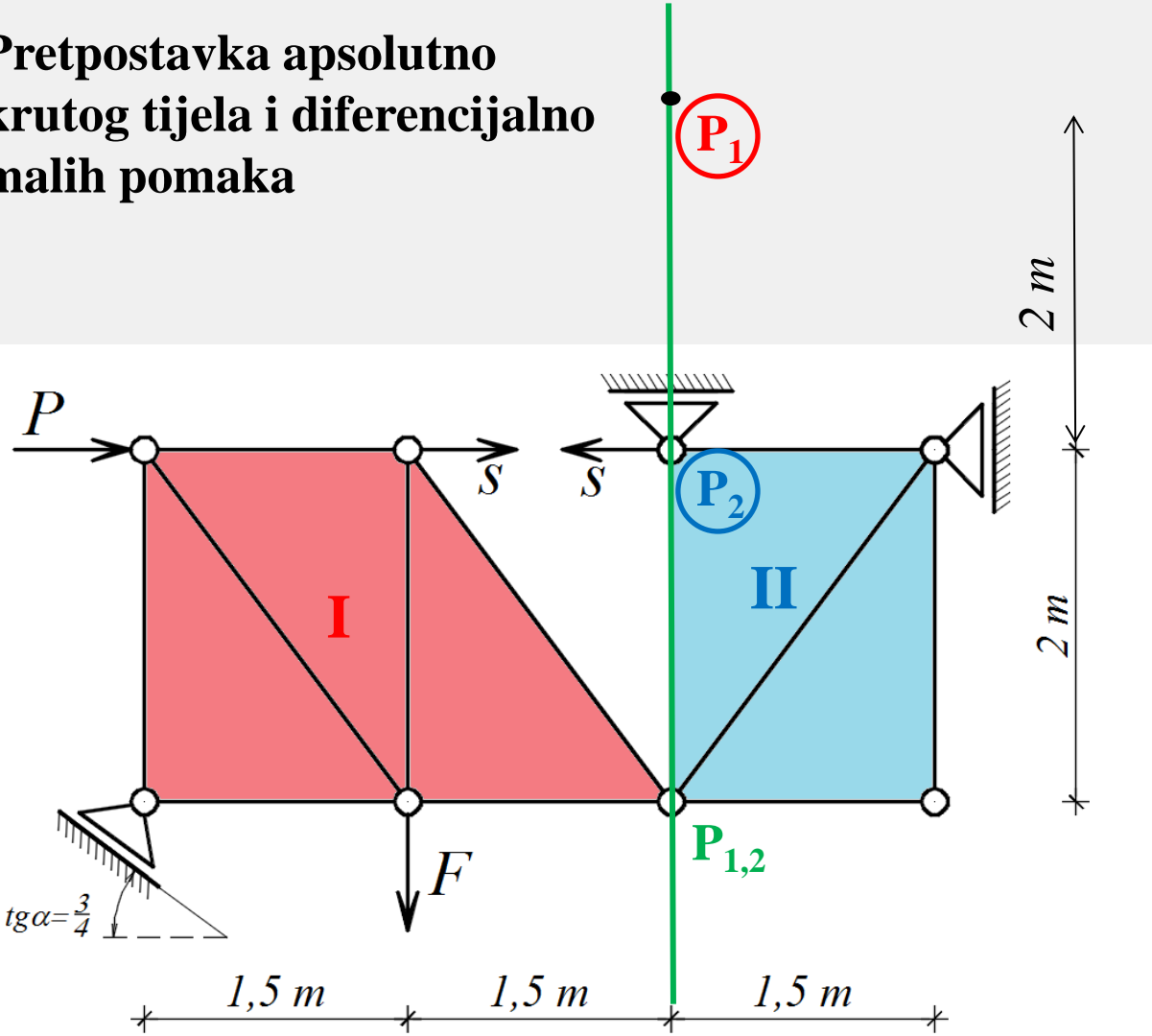
# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka



# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka

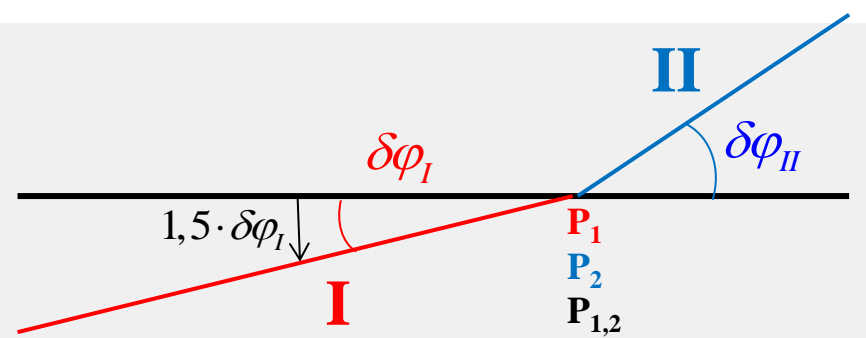
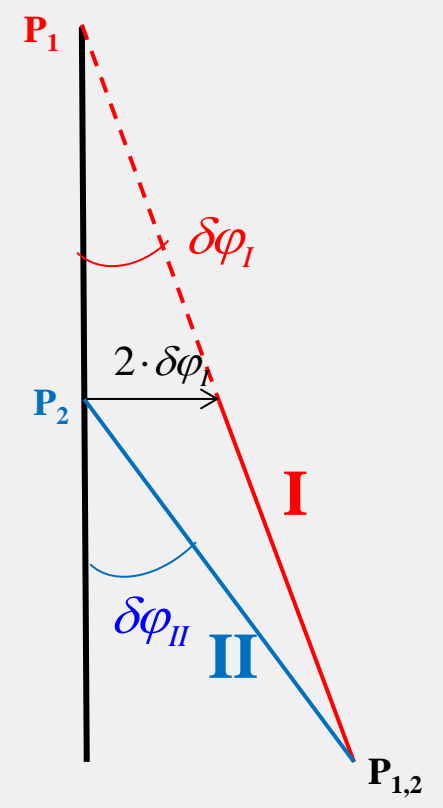
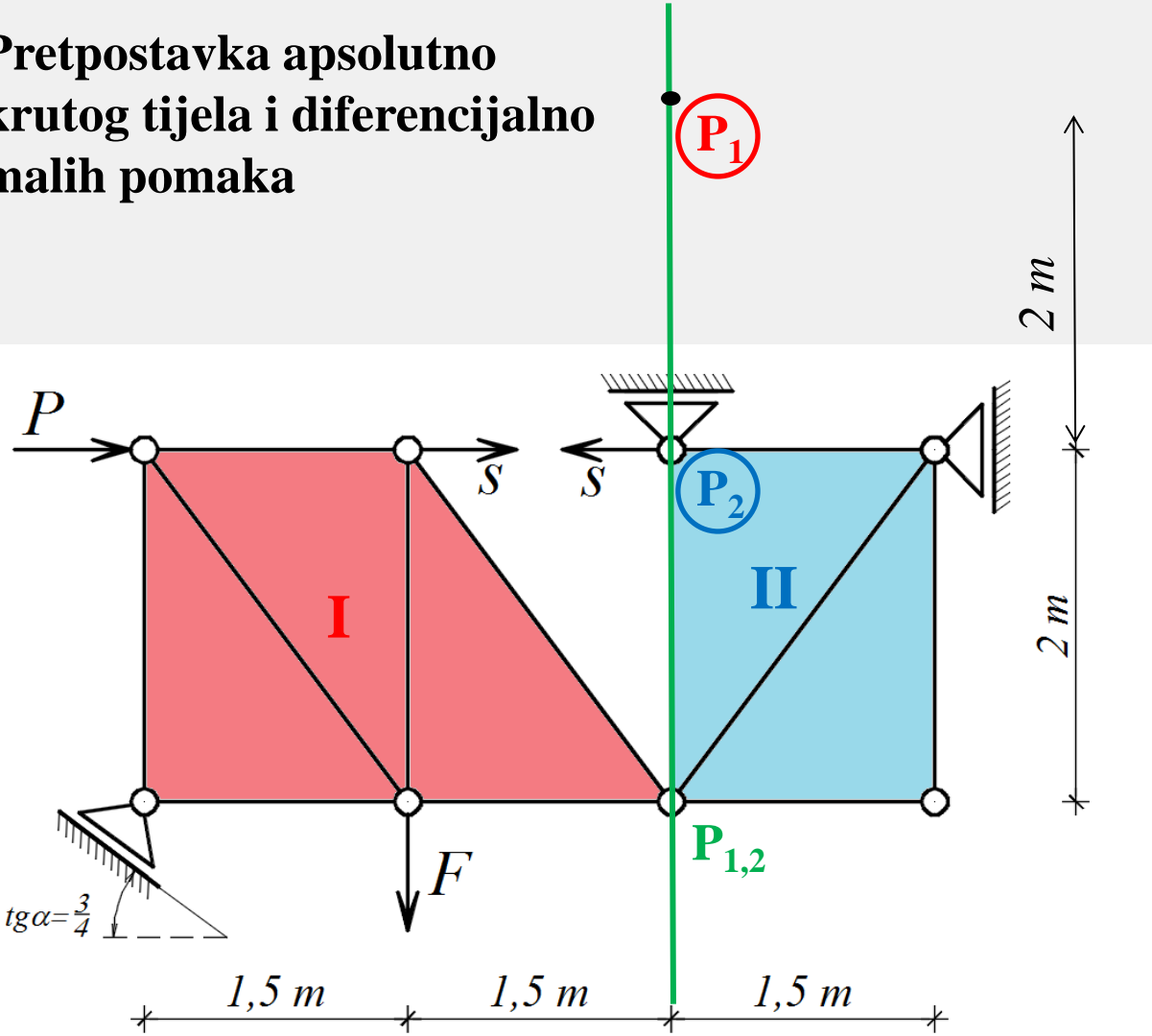


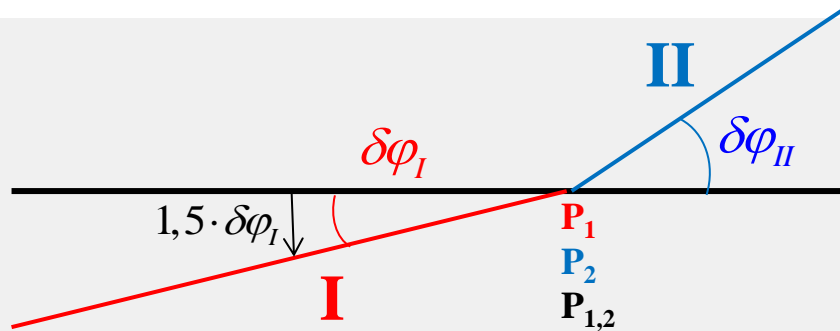
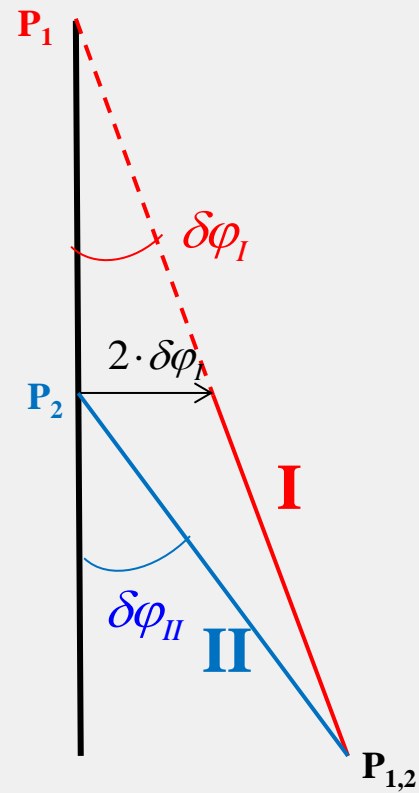
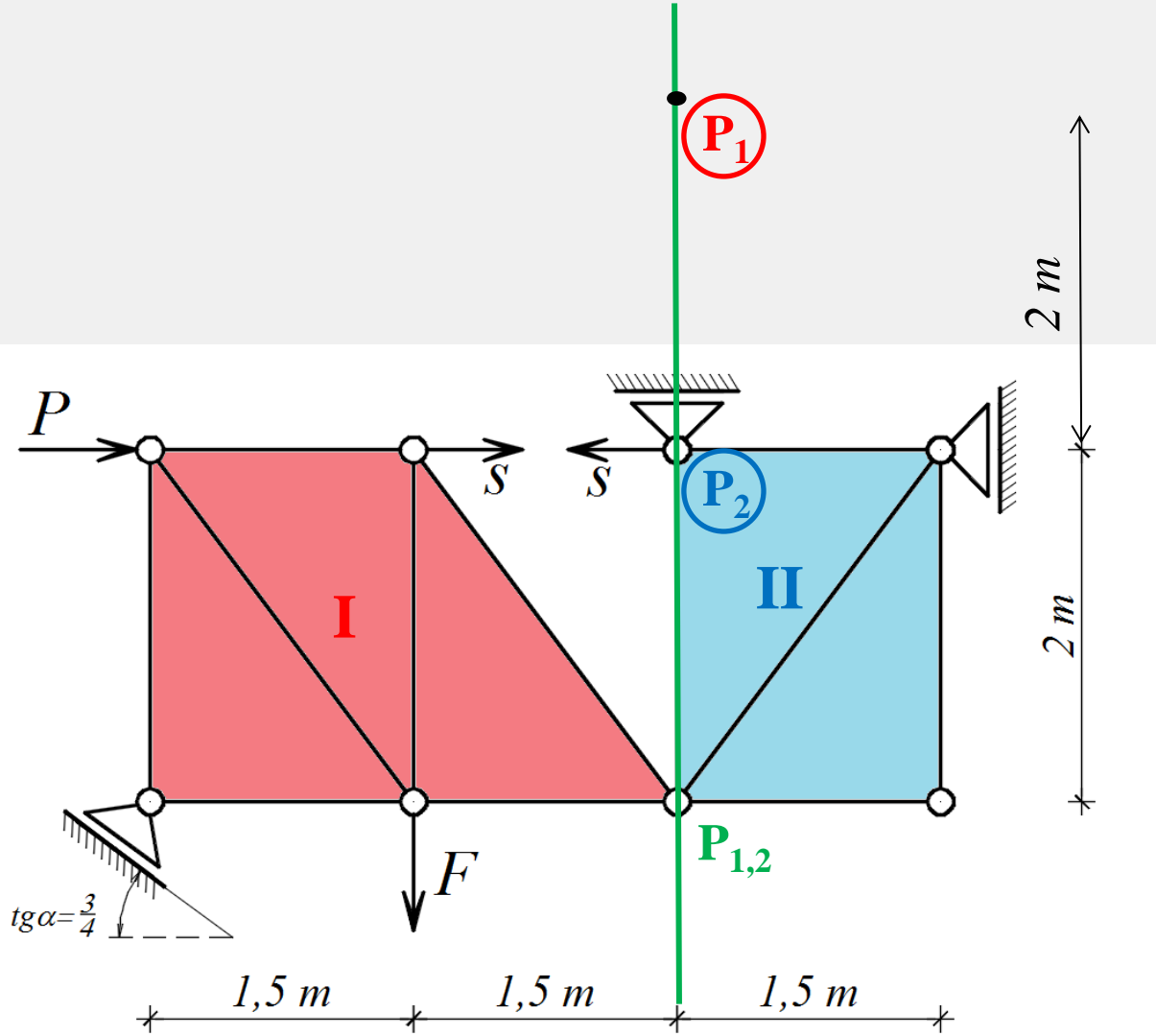
# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka

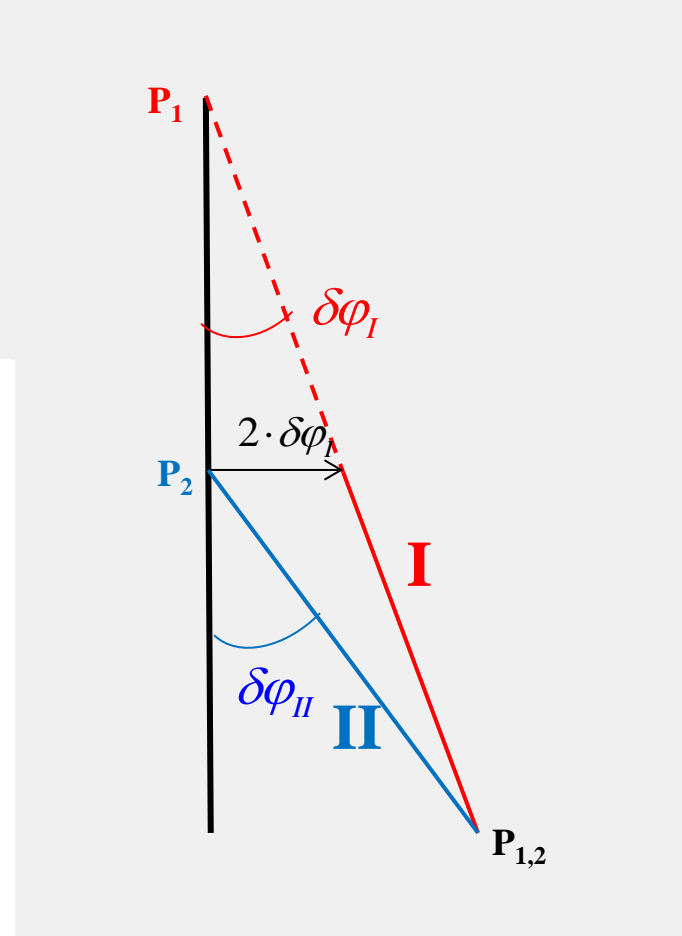
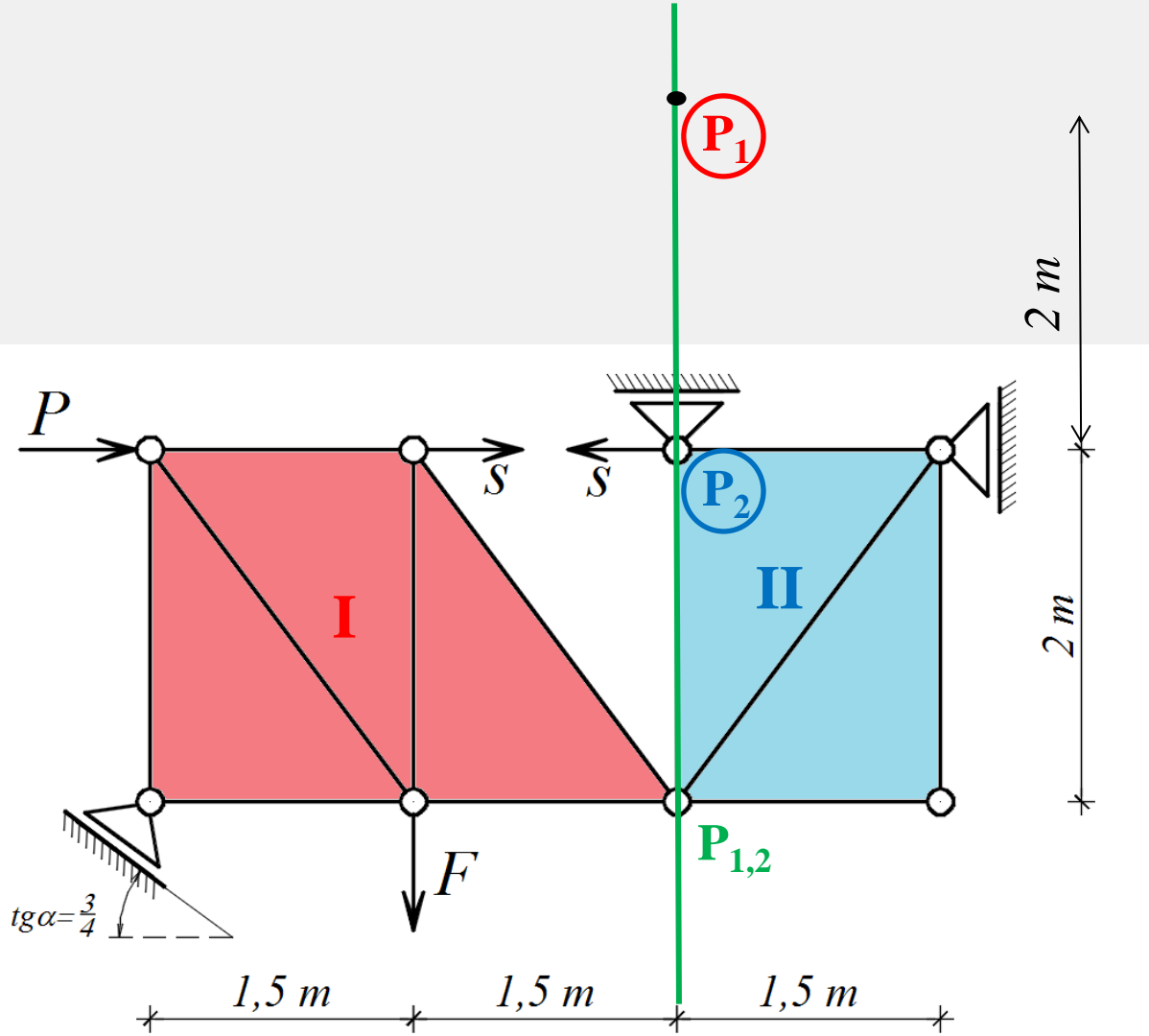




# Pretpostavka apsolutno krutog tijela i diferencijalno malih pomaka

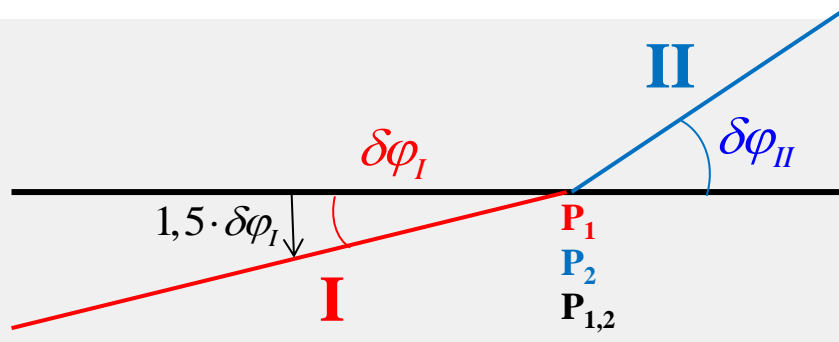


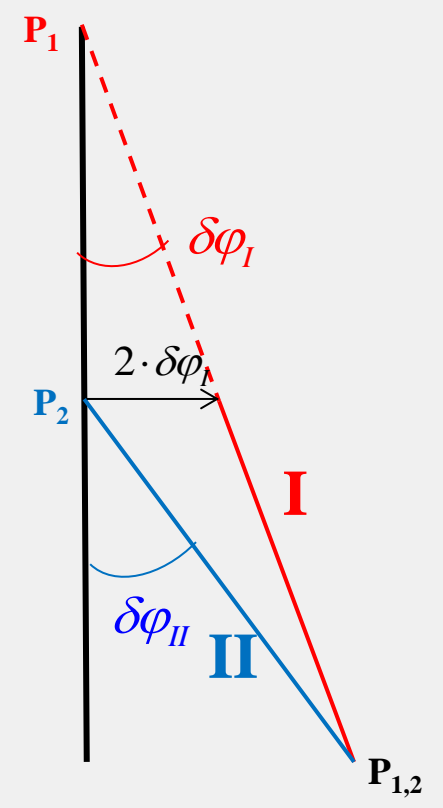
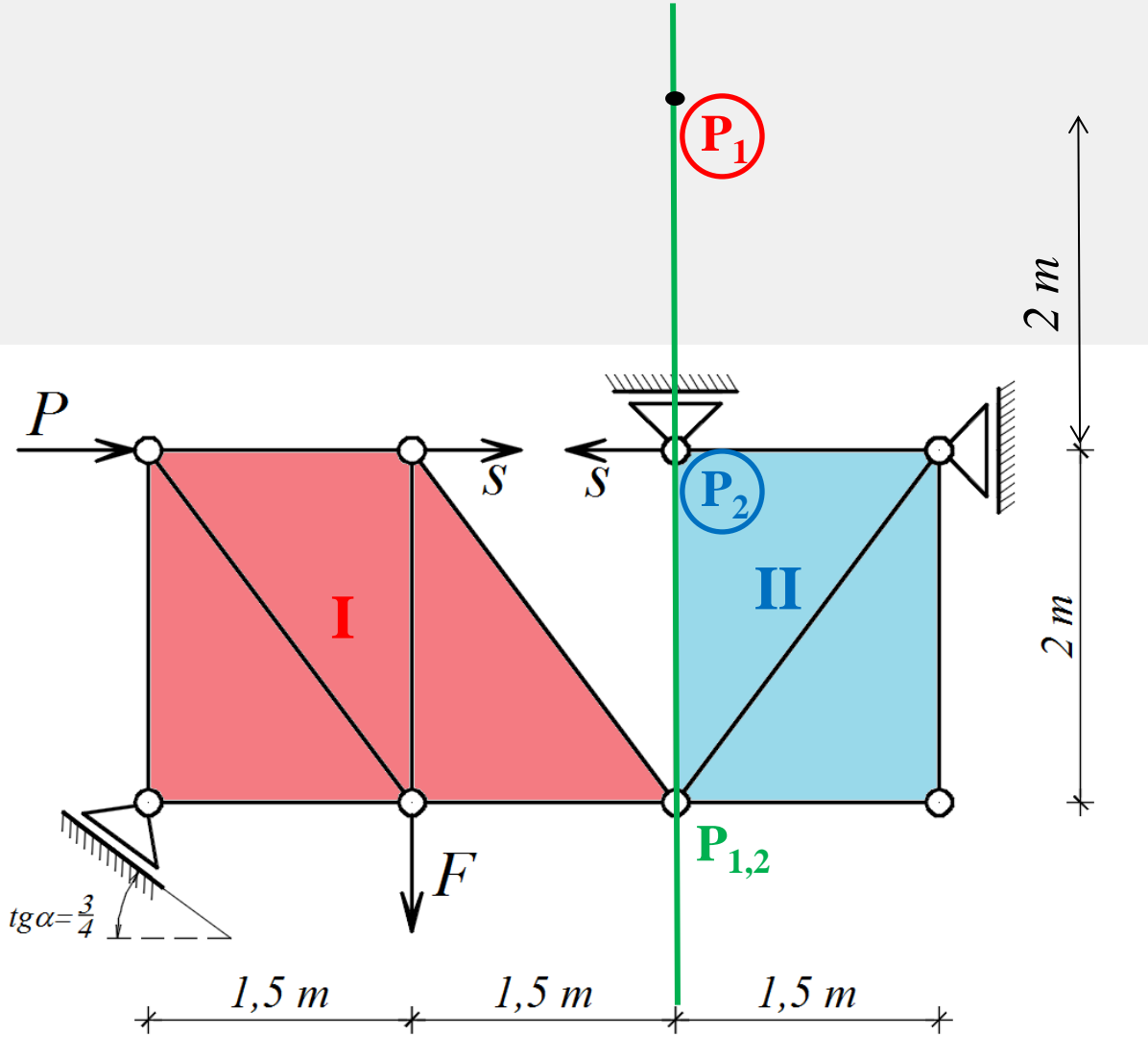




**Virtualni rad**

$$\sum \delta W = 0$$

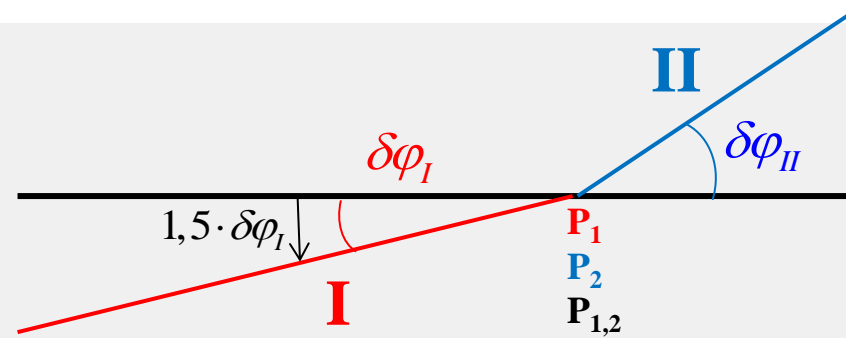


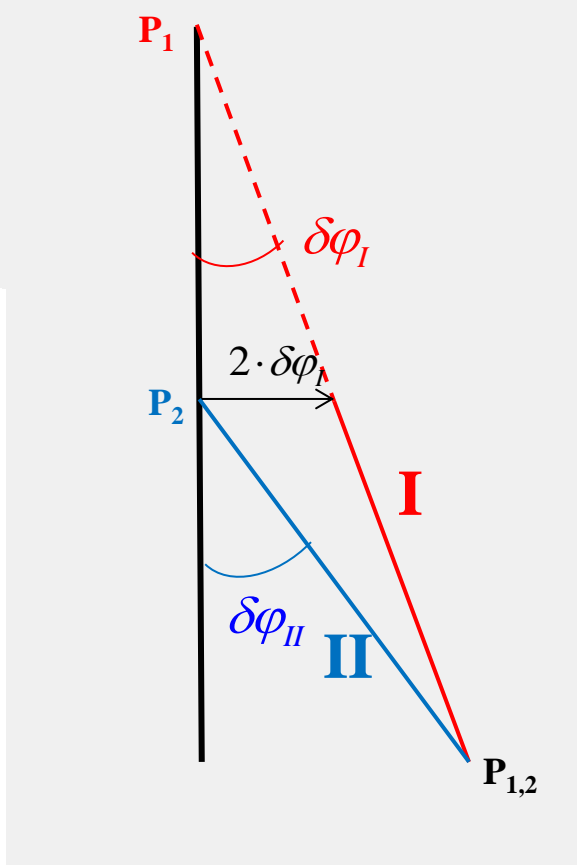
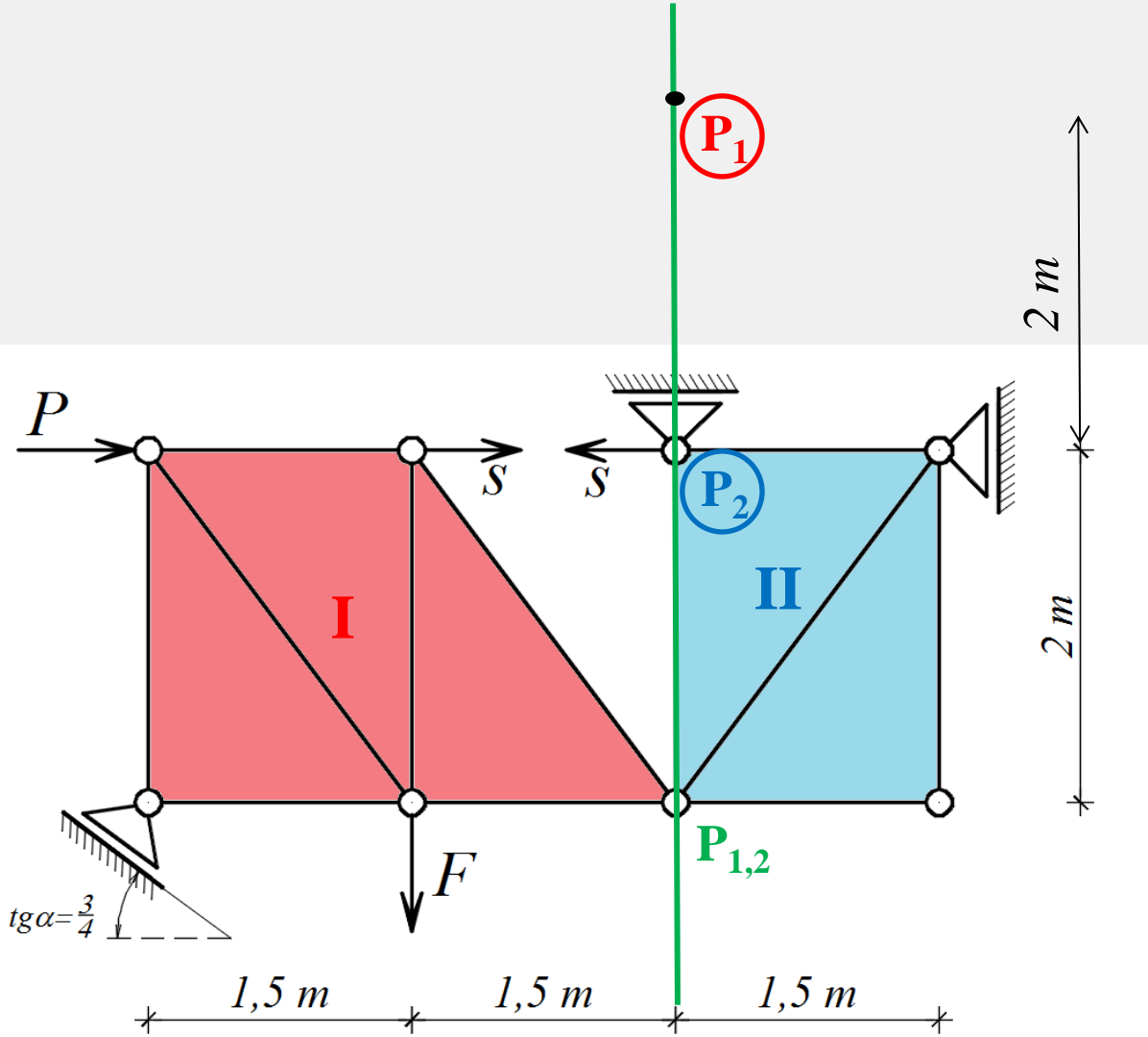


**Virtualni rad**

$$\sum \delta W = 0$$

$$P \cdot 2 \cdot \delta\varphi_I + S \cdot 2 \cdot \delta\varphi_I + S \cdot 0 + F \cdot 1,5 \cdot \delta\varphi_I = 0$$

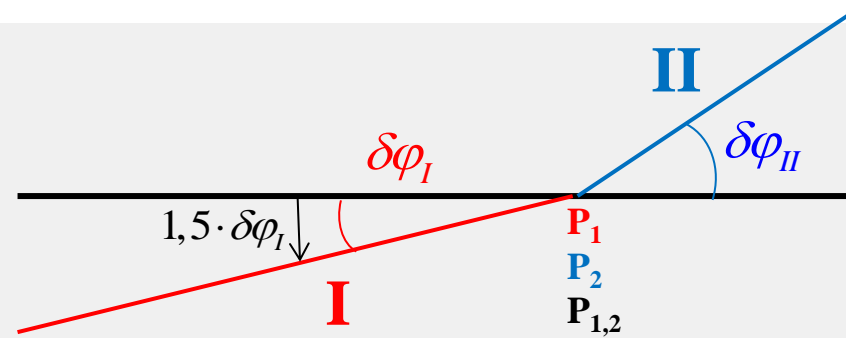


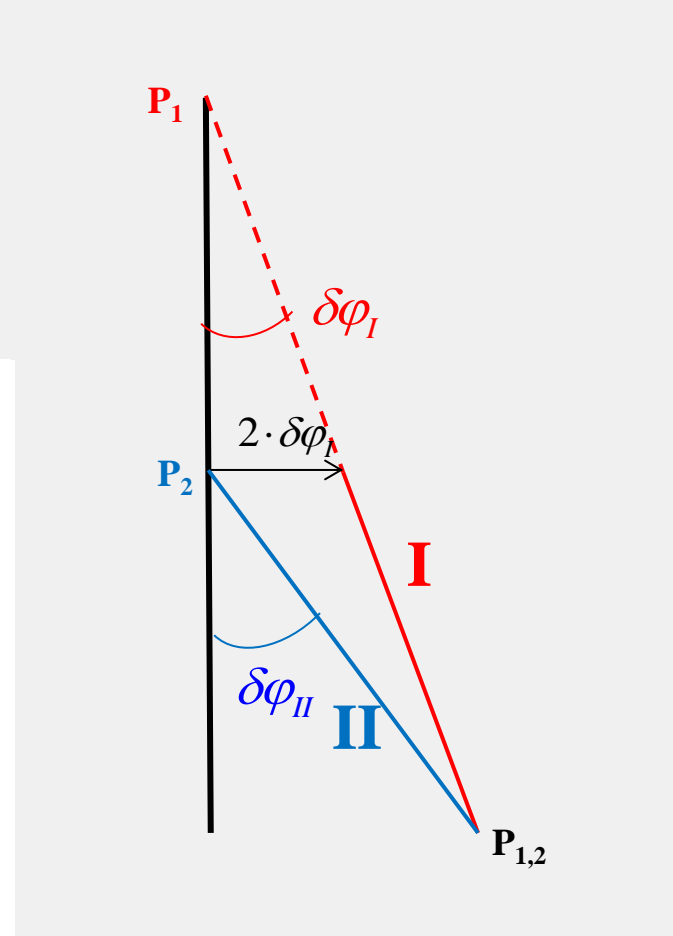
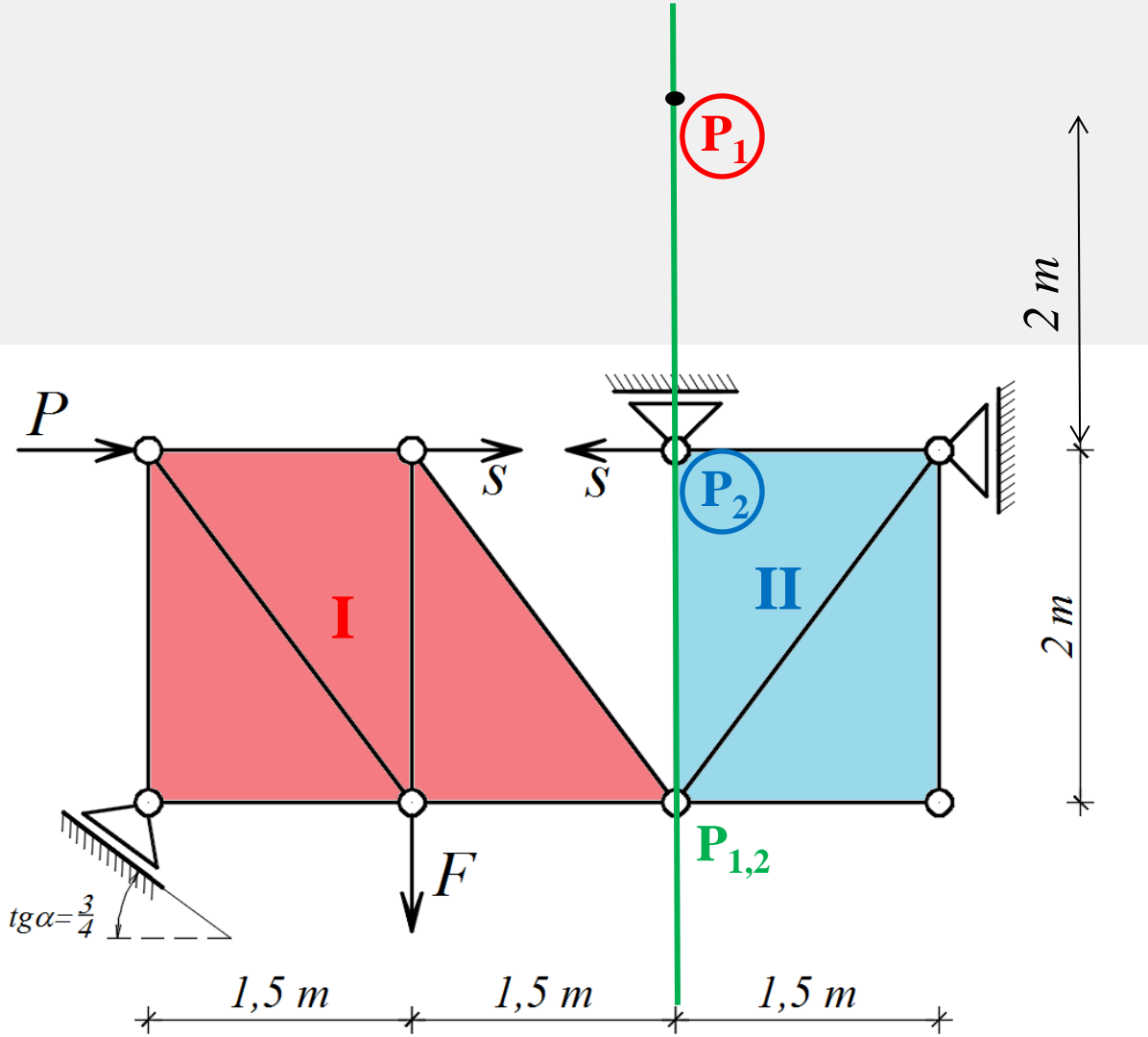


**Virtualni rad**

$$\sum \delta W = 0$$

$$P \cdot 2 \cdot \delta\varphi_I + S \cdot 2 \cdot \delta\varphi_I + S \cdot 0 + F \cdot 1,5 \cdot \delta\varphi_I = 0$$



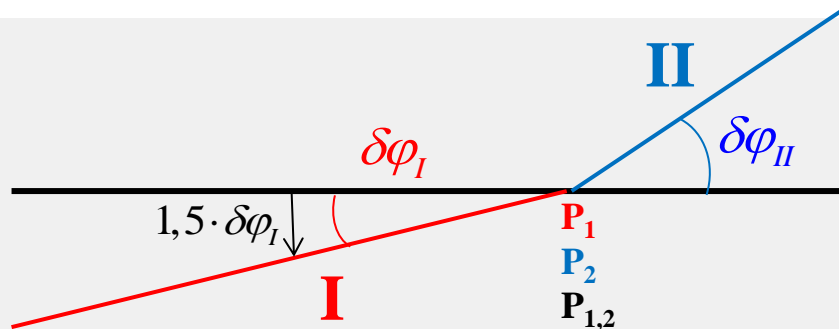


### Virtualni rad

$$\sum \delta W = 0$$

$$P \cdot 2 \cdot \delta\varphi_I + S \cdot 2 \cdot \delta\varphi_I + S \cdot 0 + F \cdot 1,5 \cdot \delta\varphi_I = 0$$

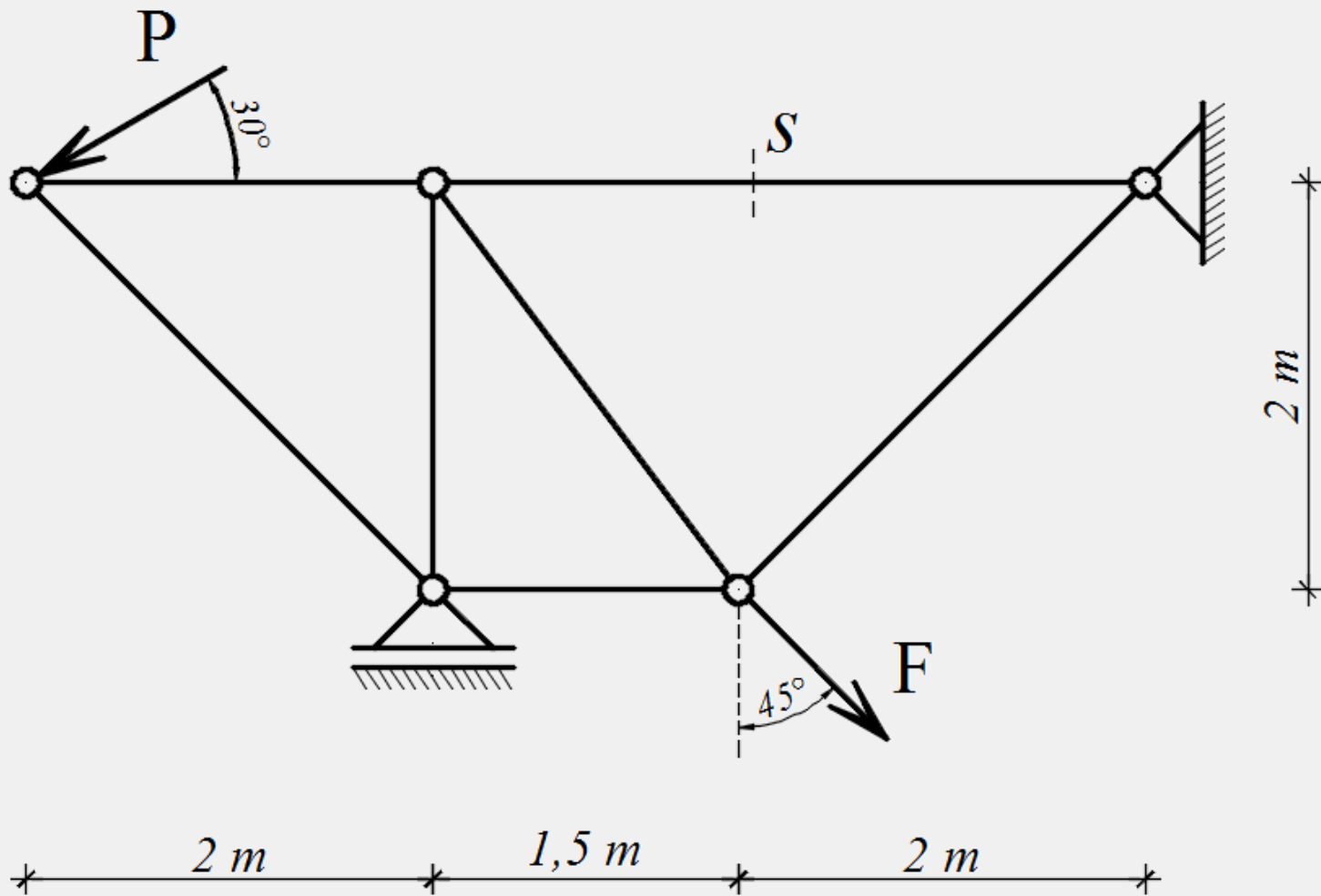
$$S = -6 \text{ kN}$$

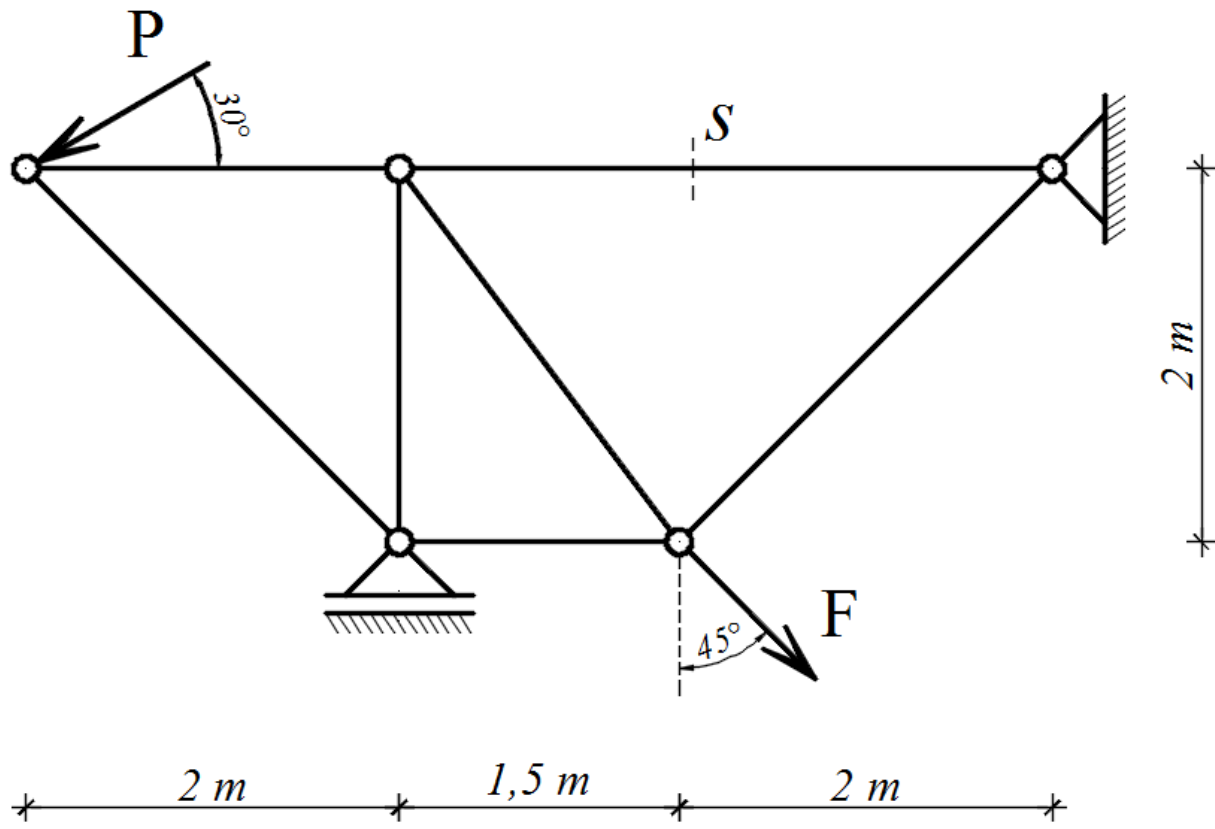


ZA ZADANI STATIČKI SUSTAV POTREBNO JE ODREDITI SILU U OZNAČENOM ŠTAPU.

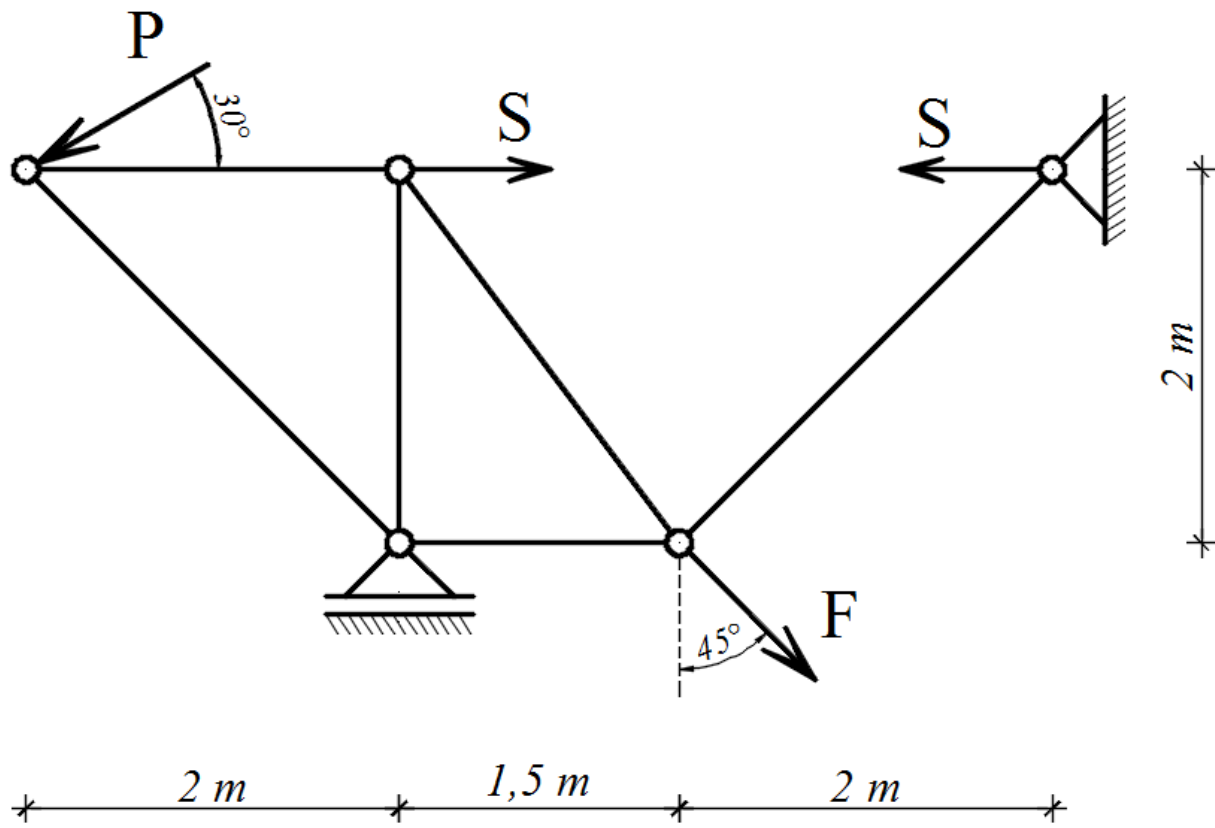
$P = 4 \text{ kN}$

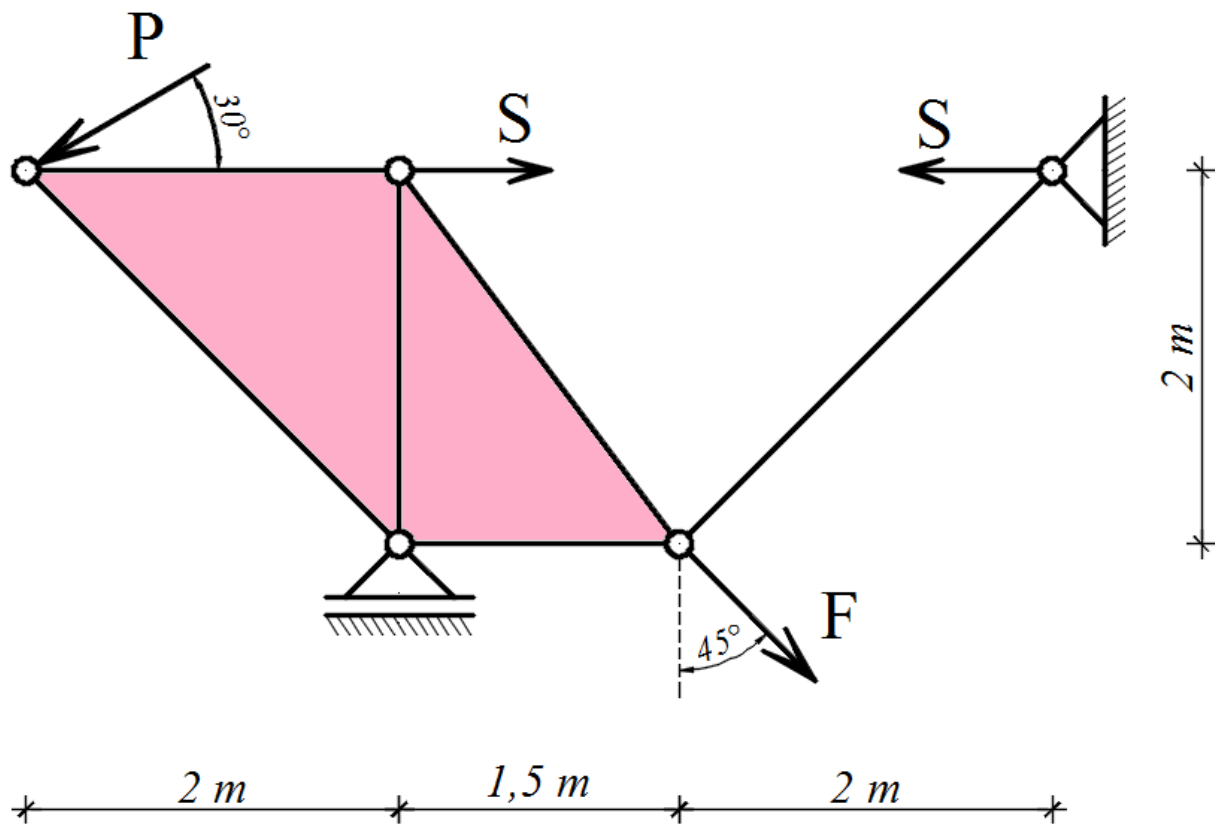
$F = 5 \text{ kN}$

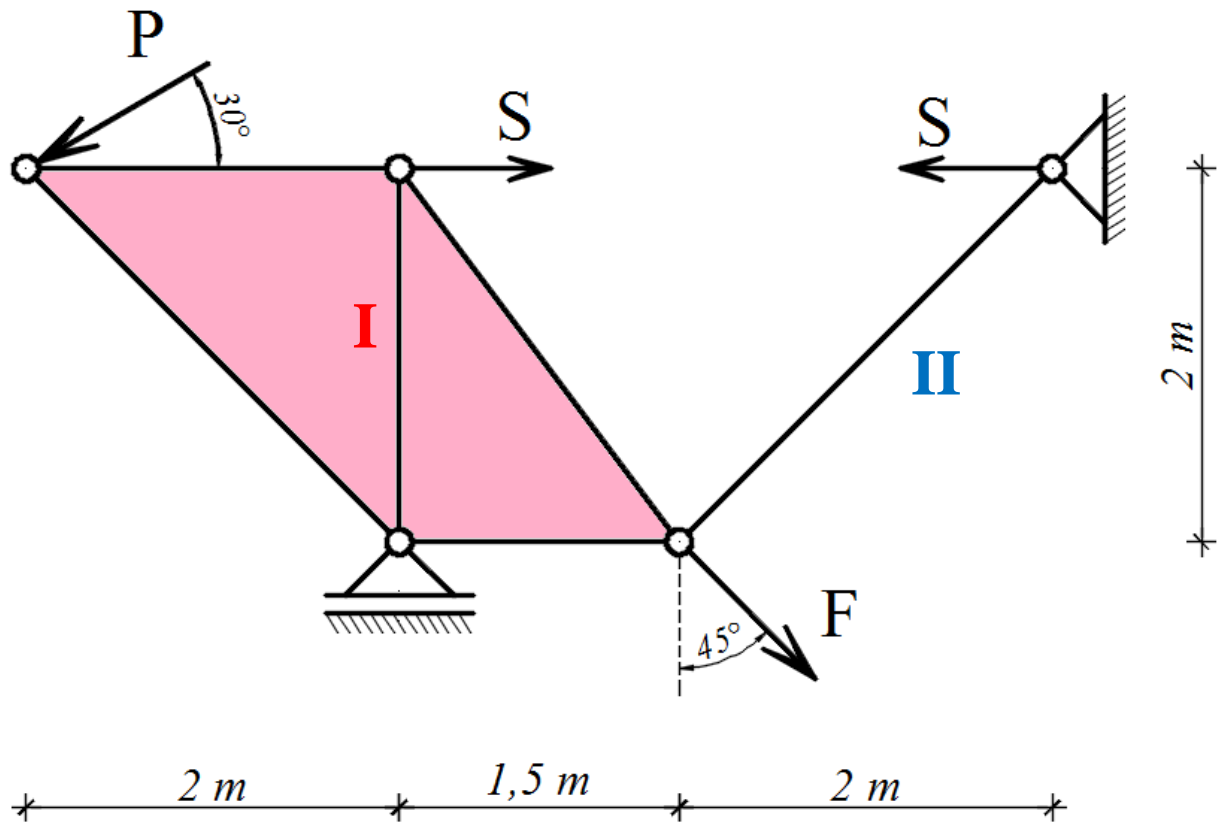


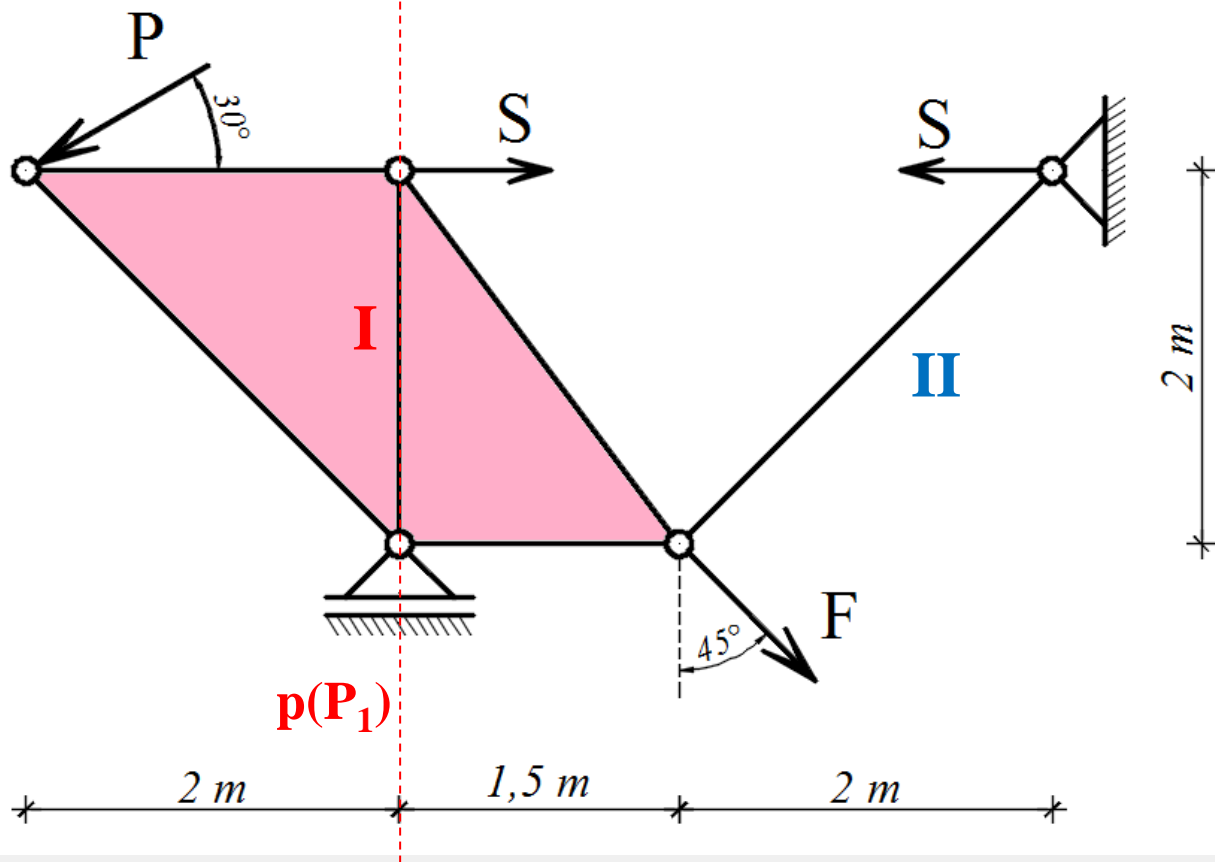


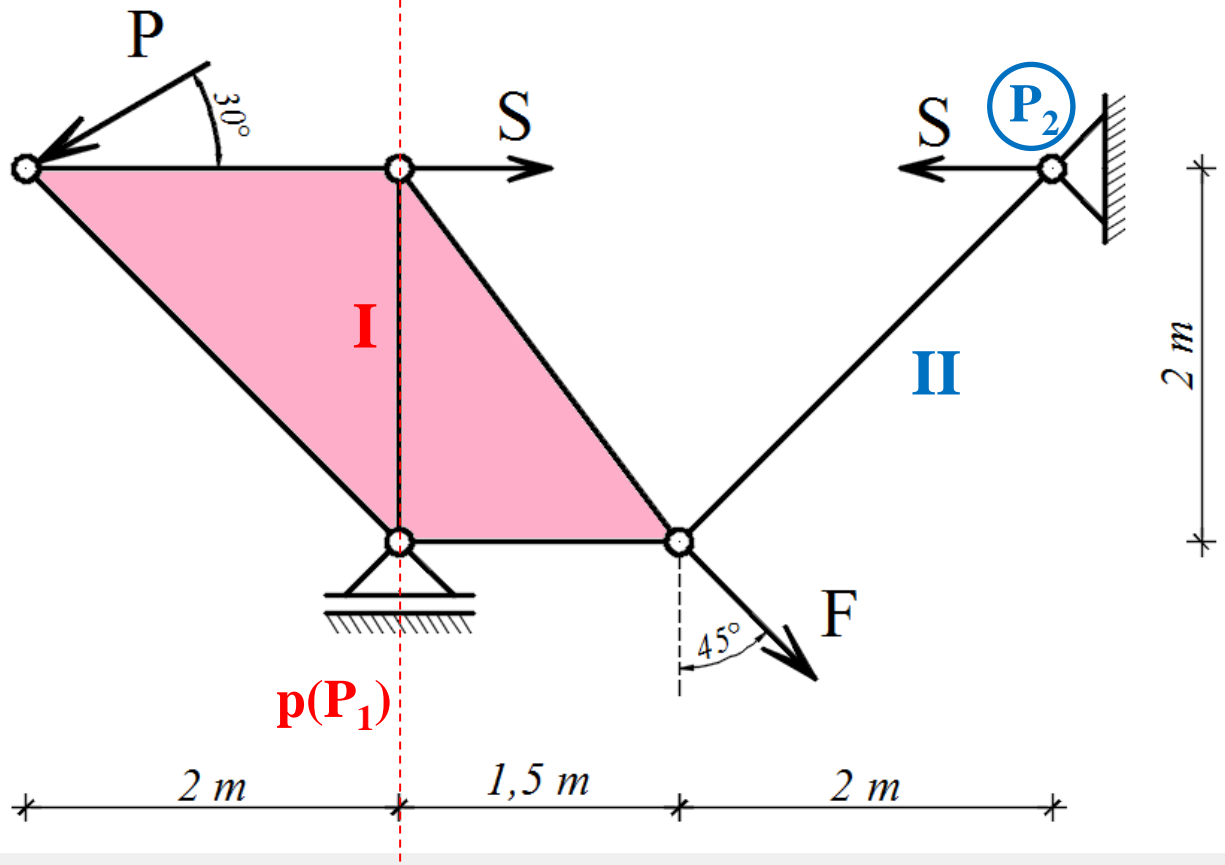


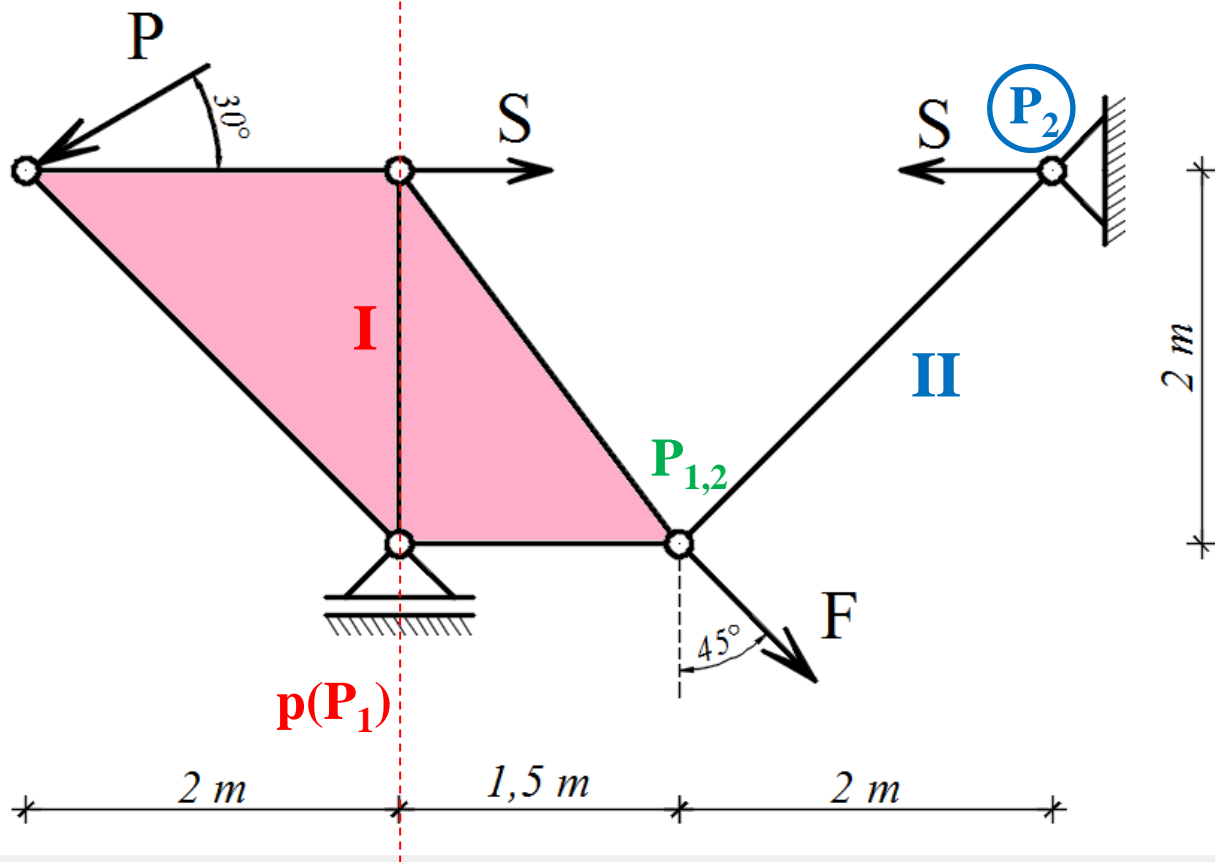


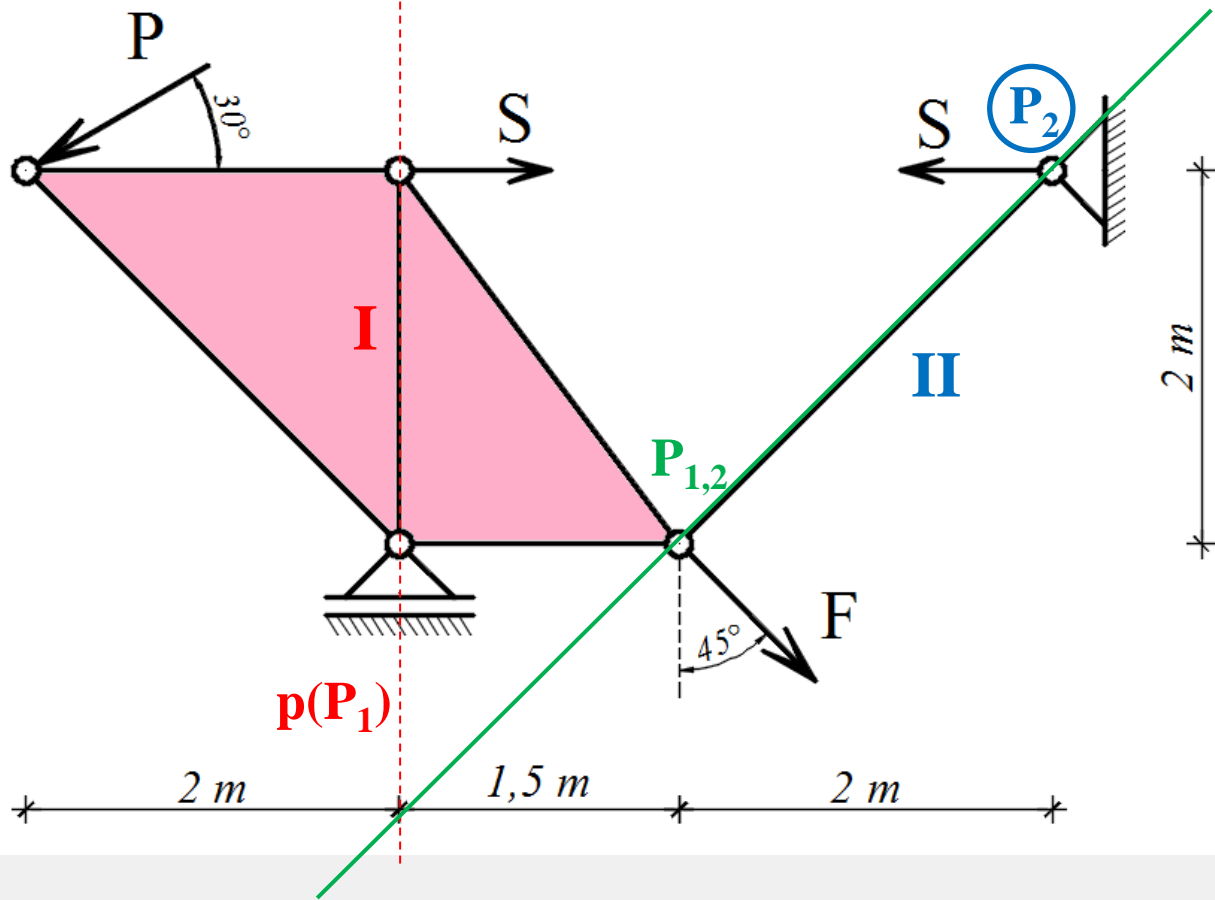


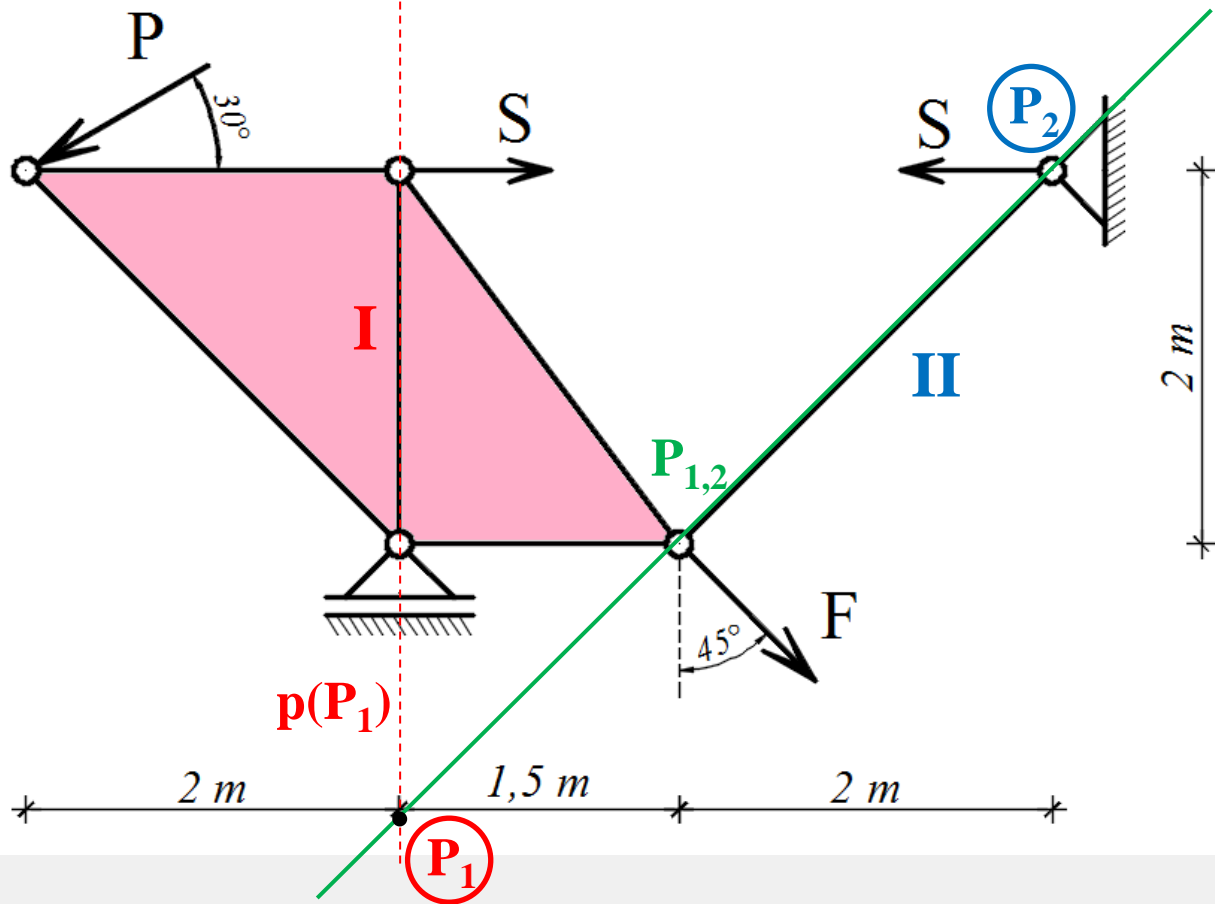




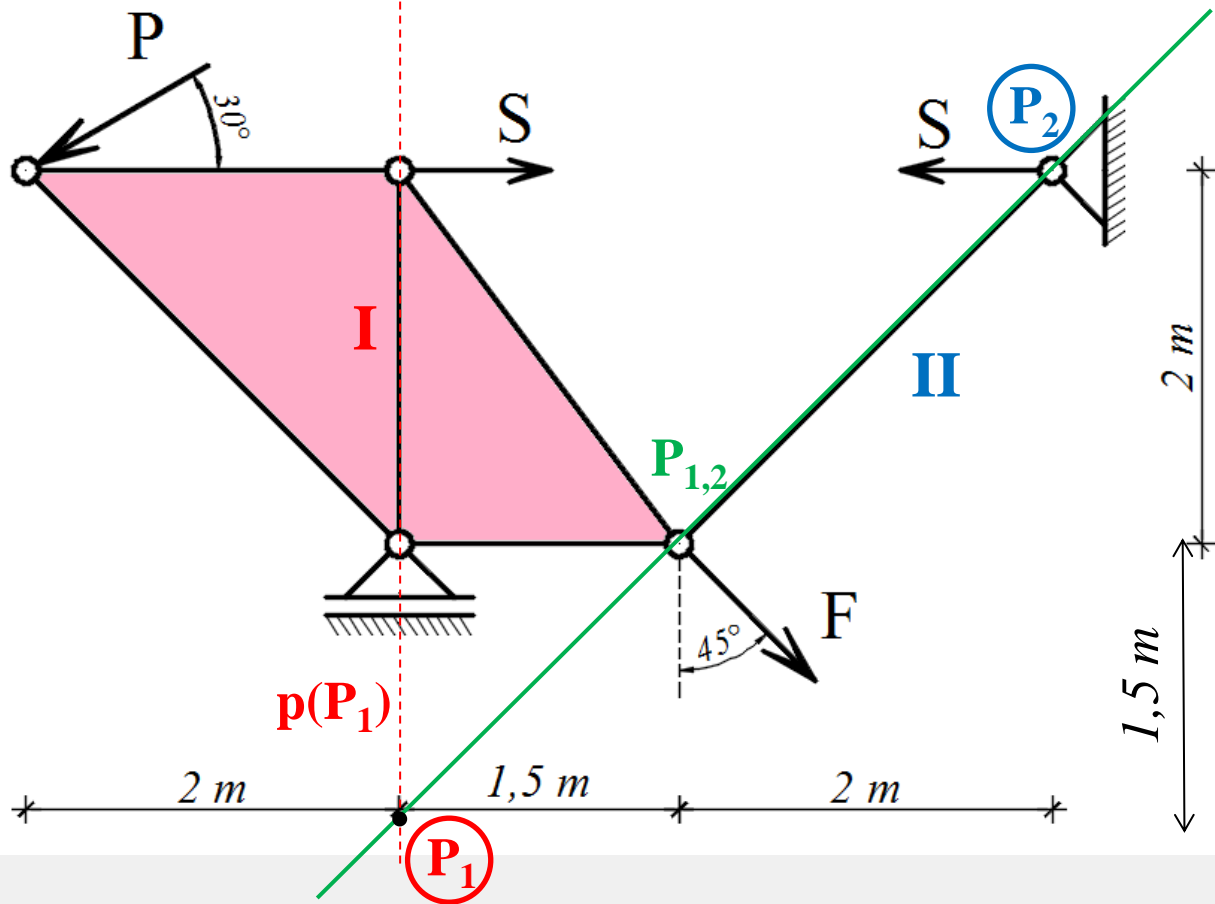


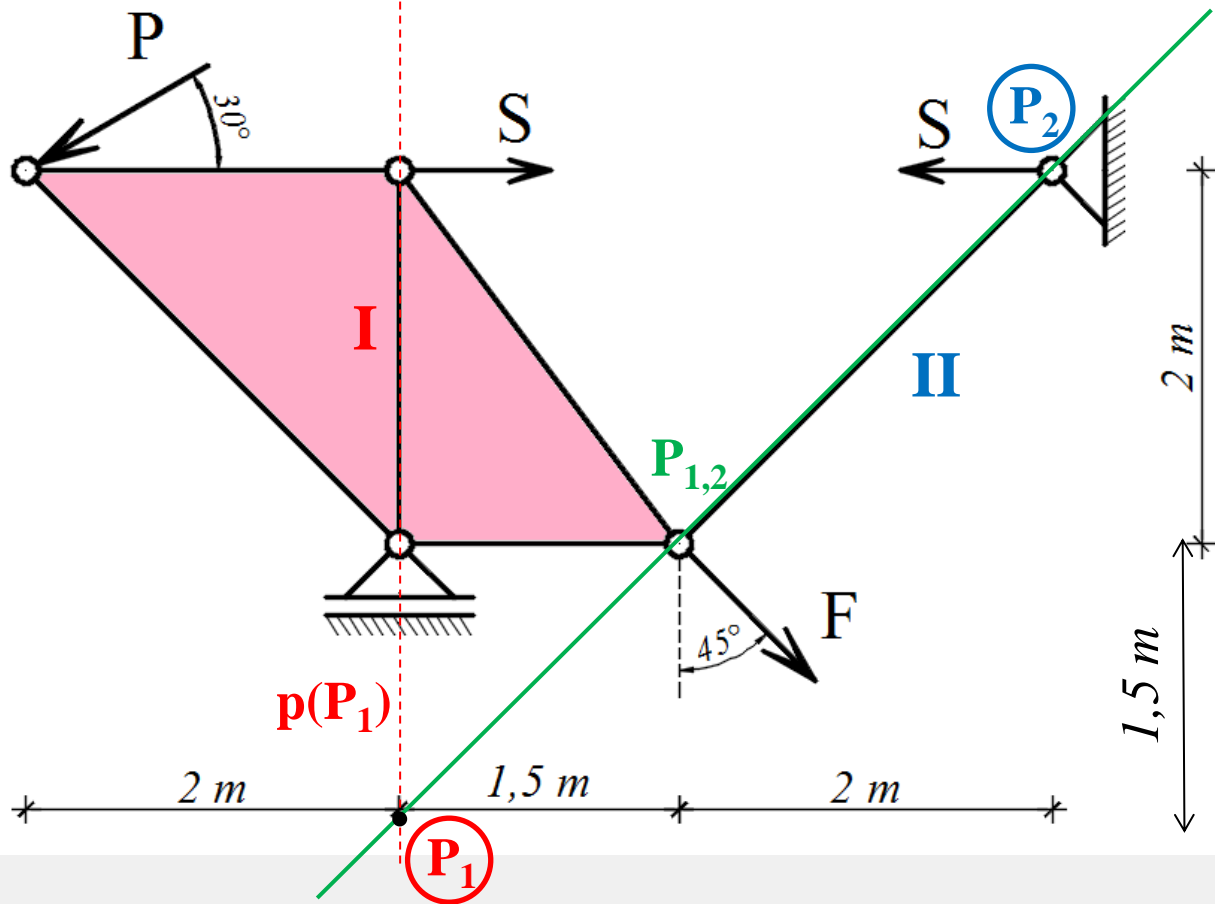


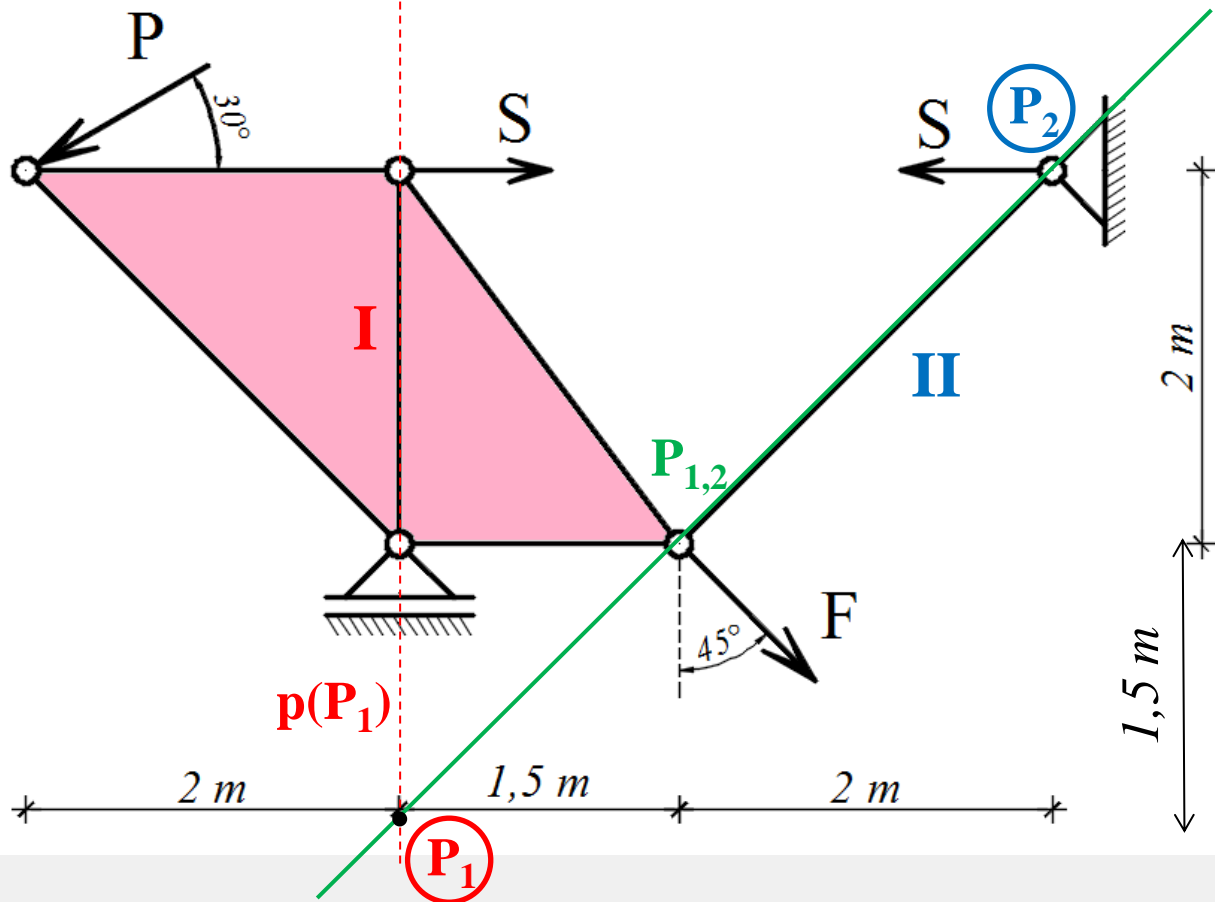










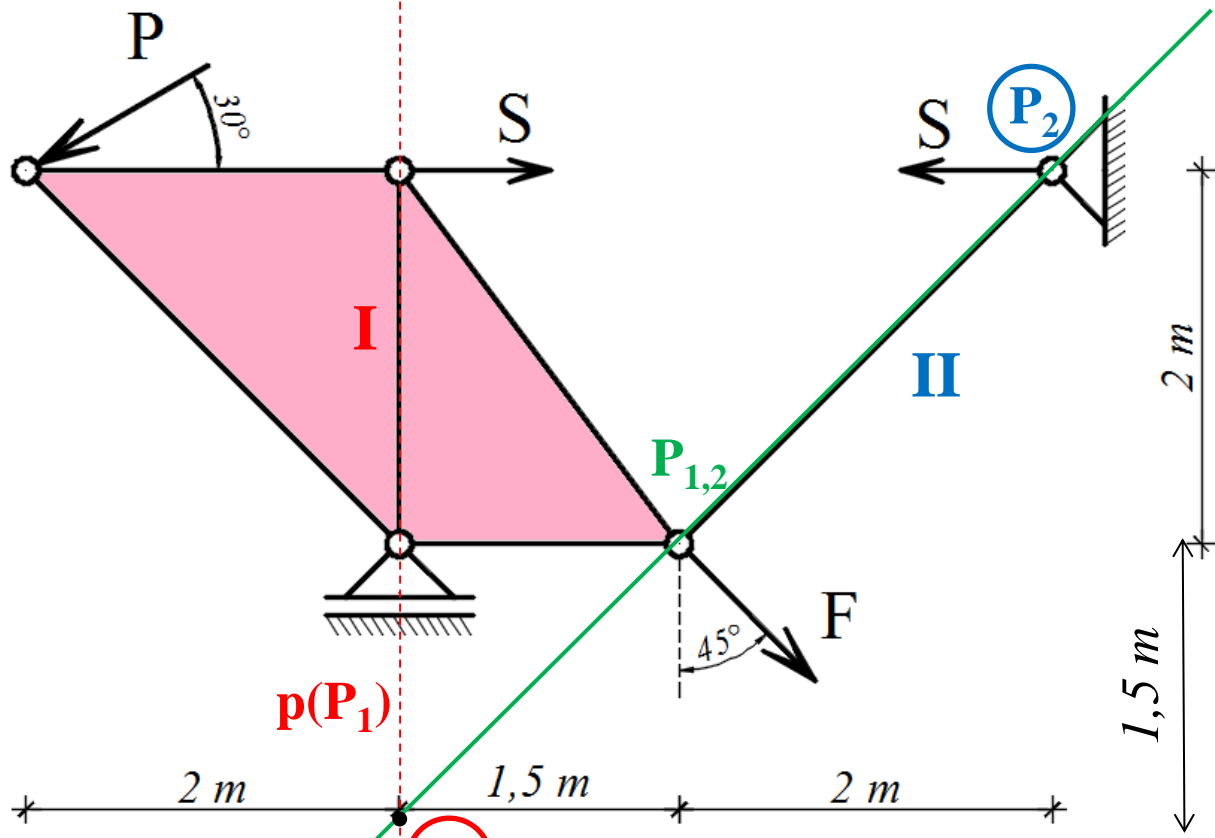


$P_2$

$P_1$

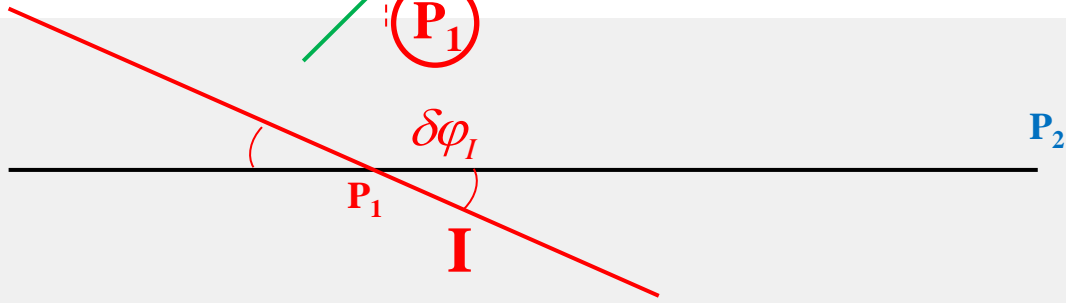
$P_2$

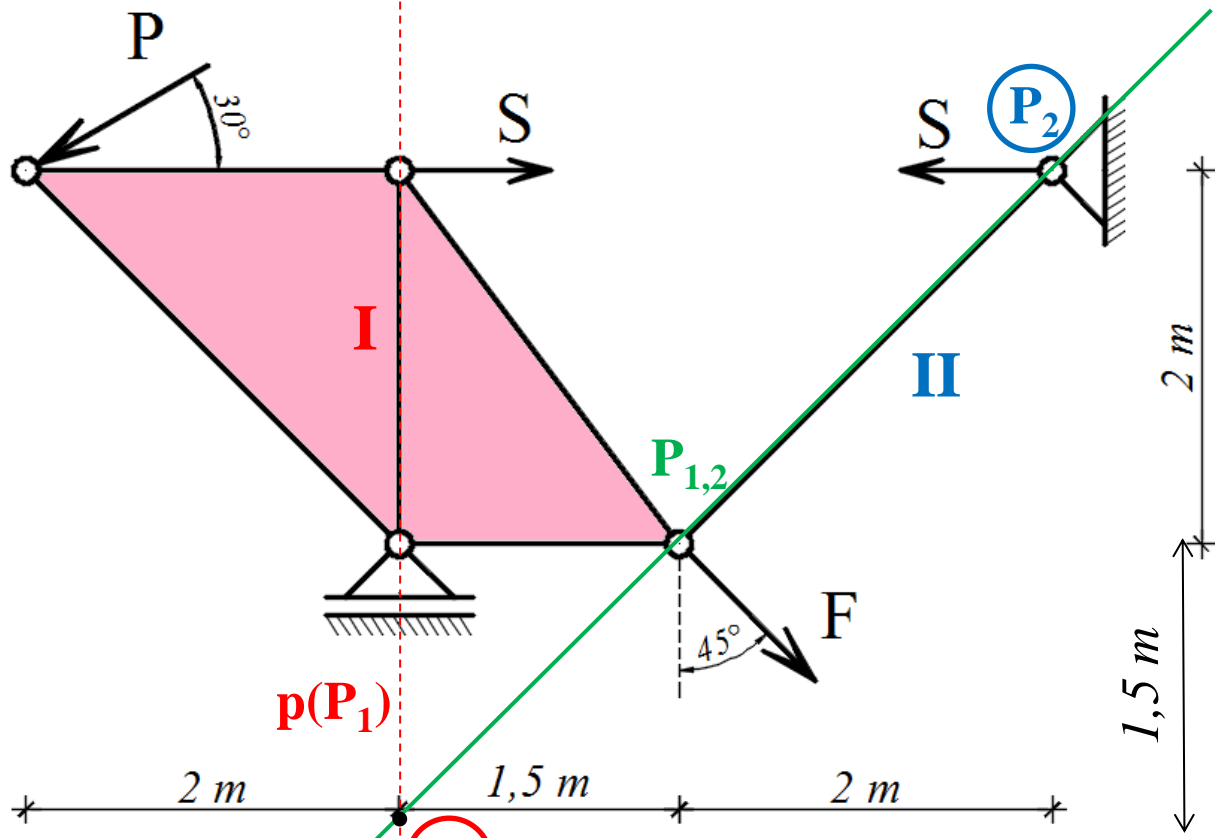
$P_1$



$P_2$

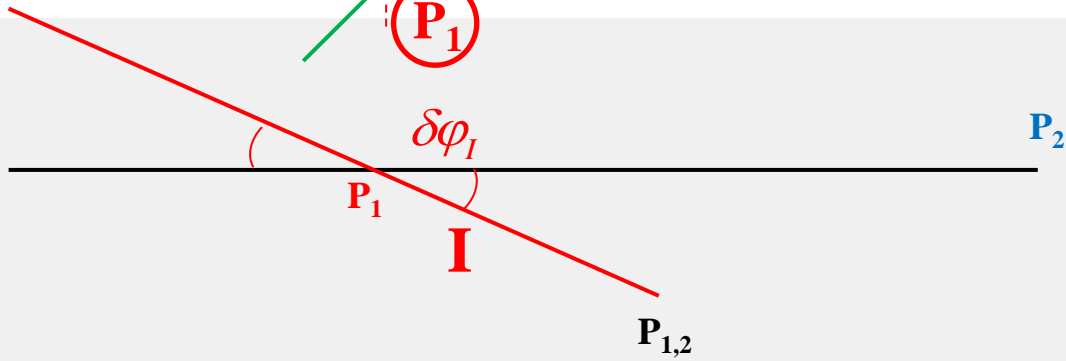
$P_1$

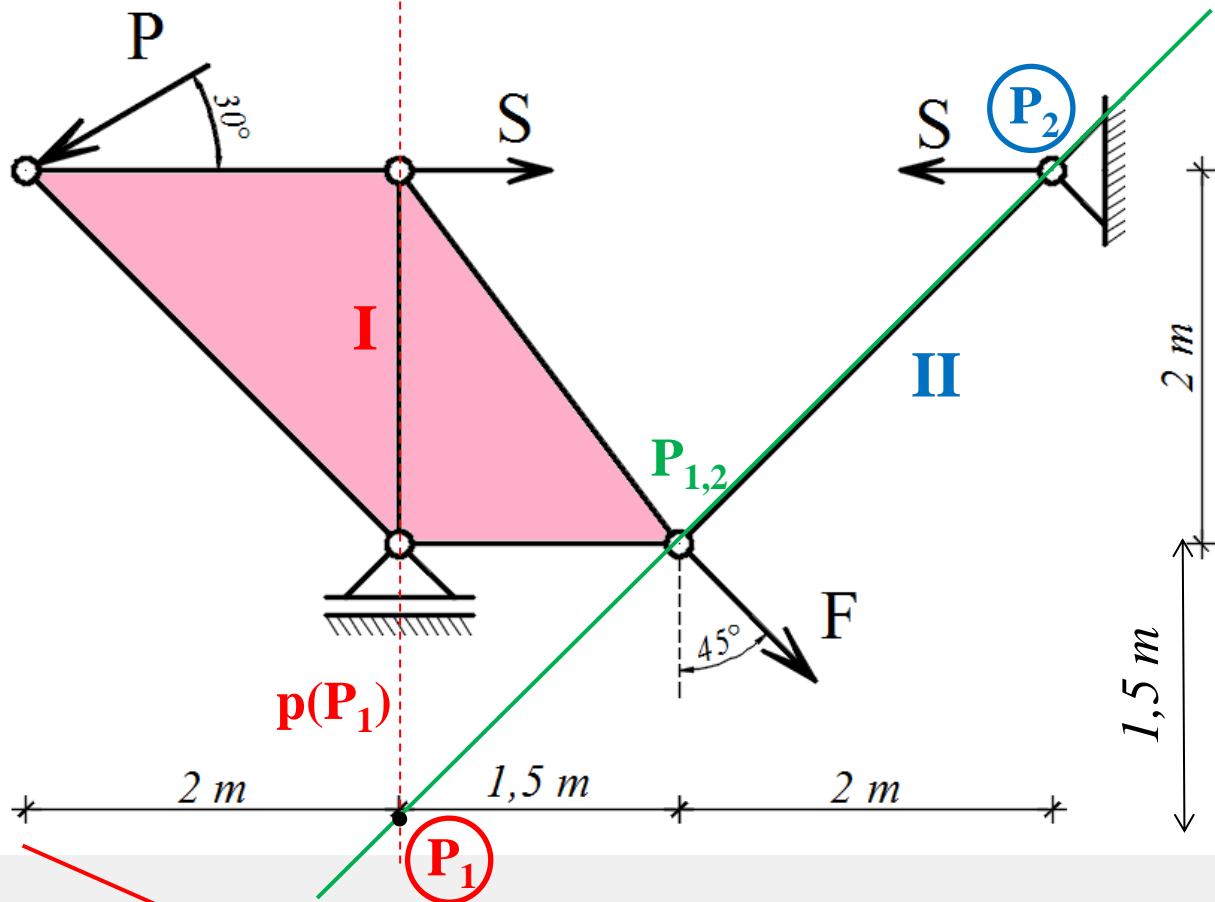




$P_2$

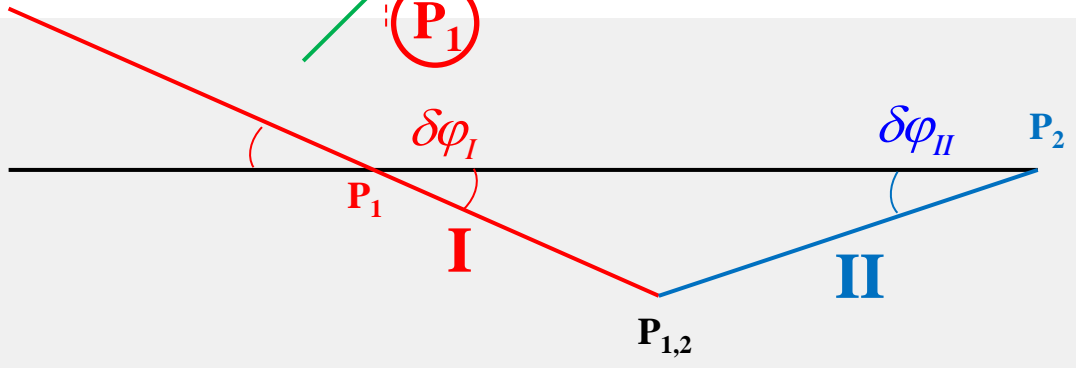
$P_1$

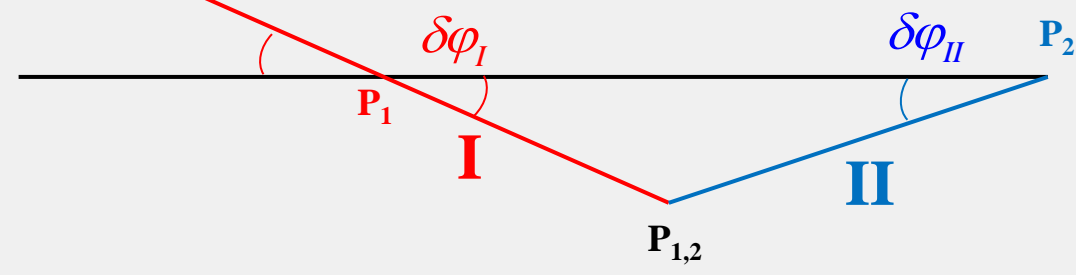
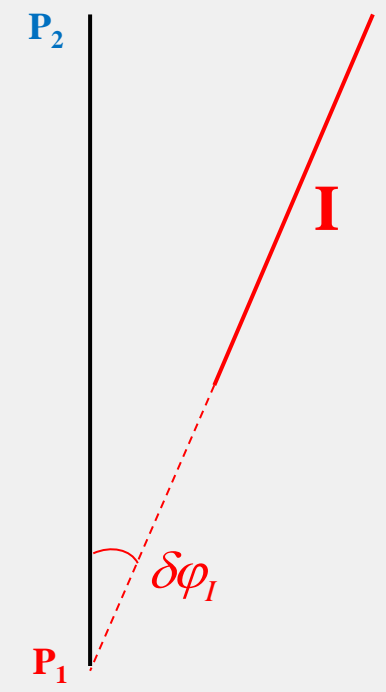
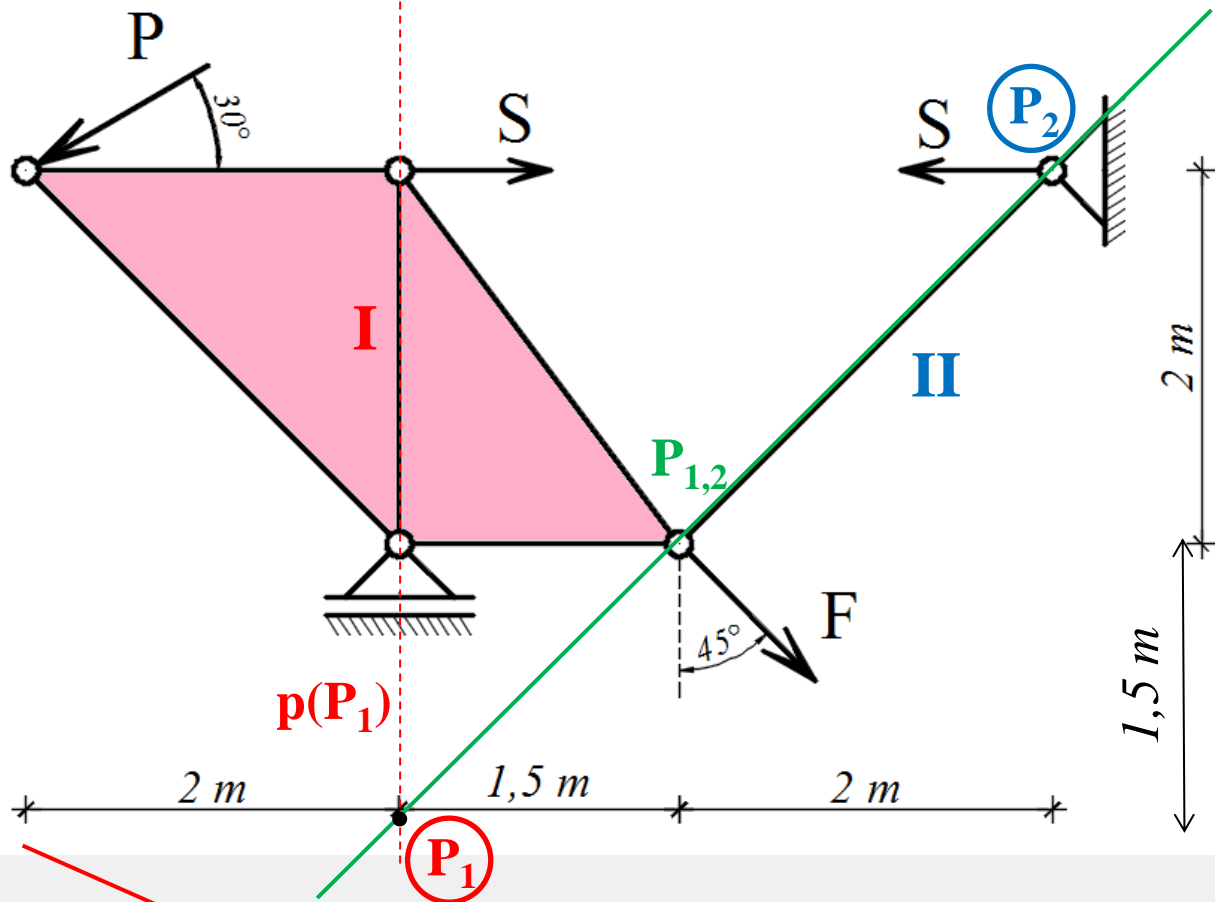


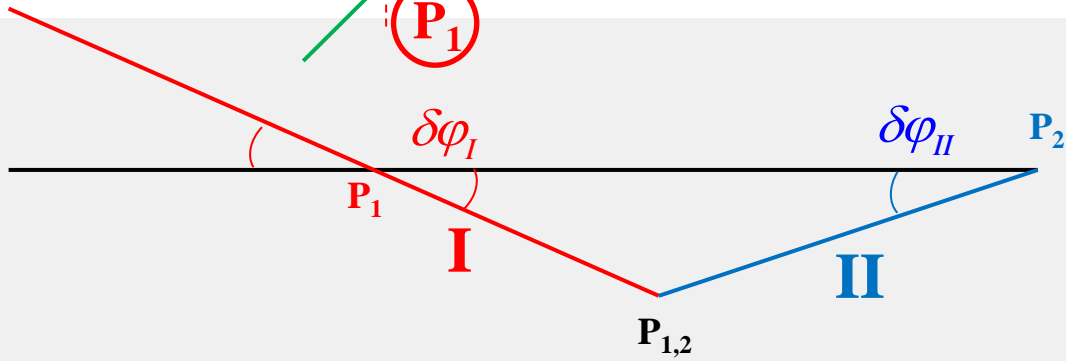
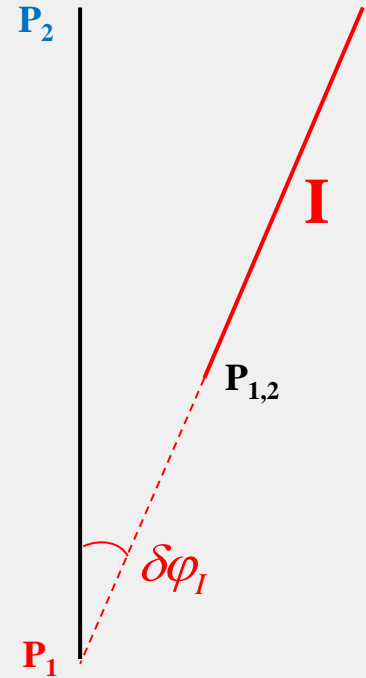
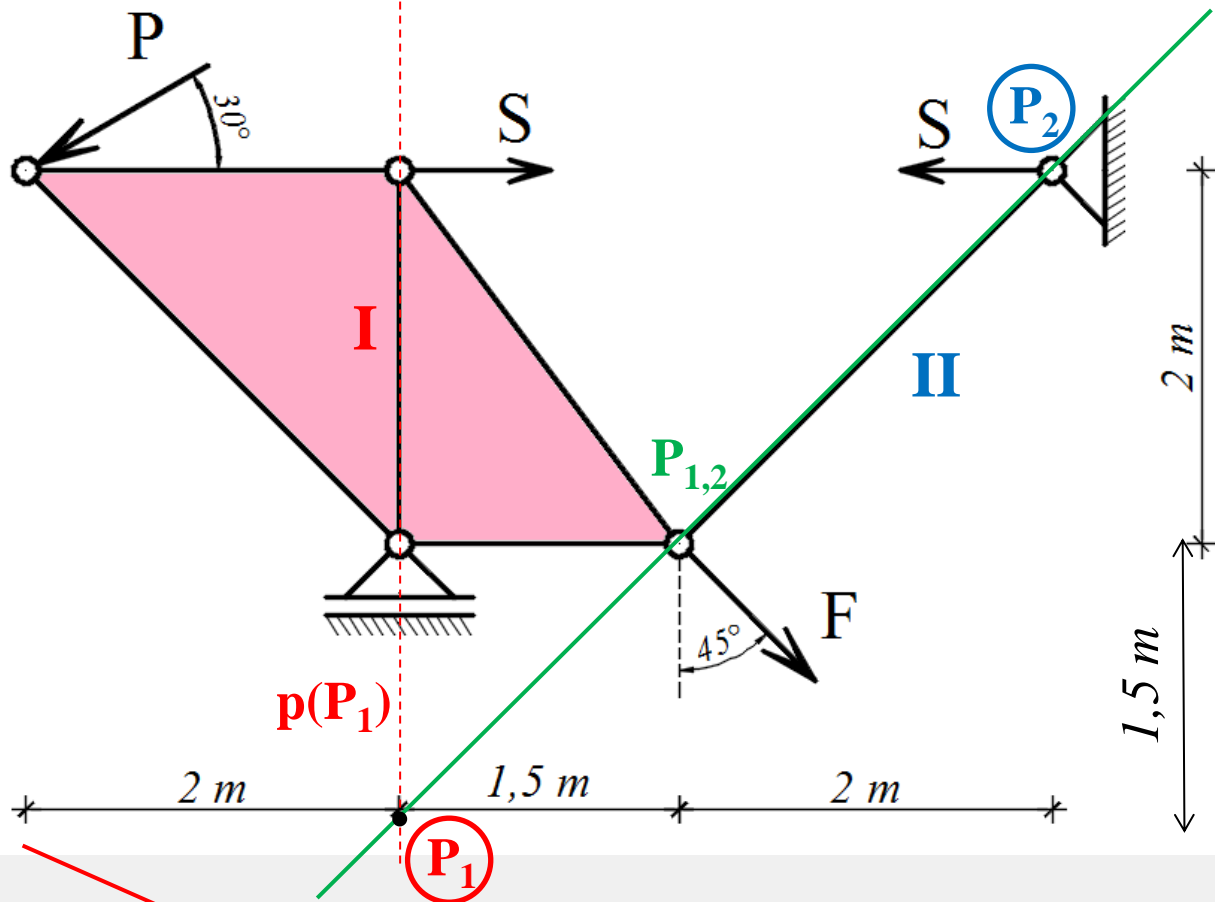


$P_2$

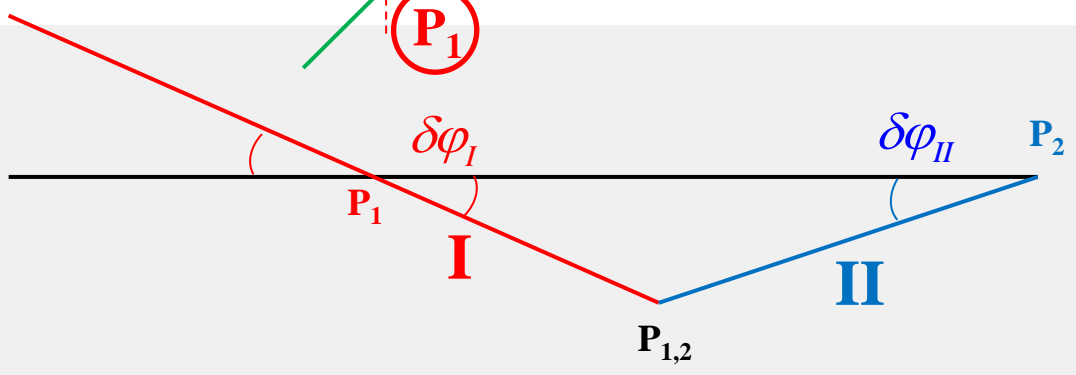
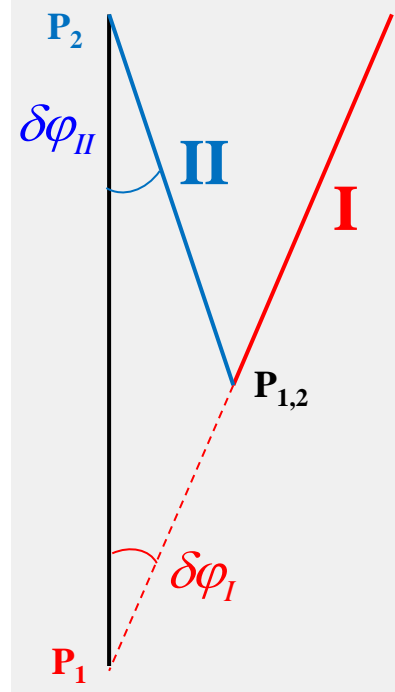
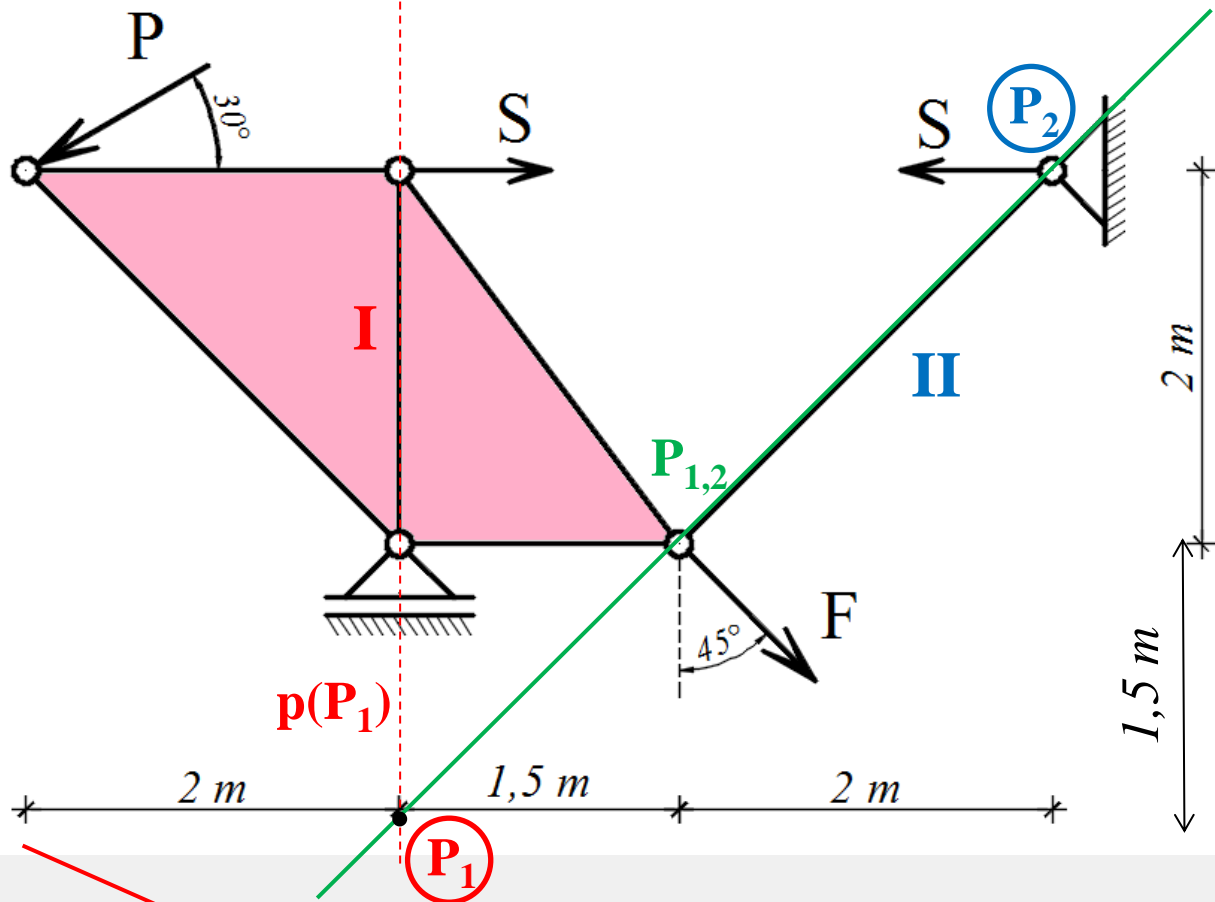
$P_1$

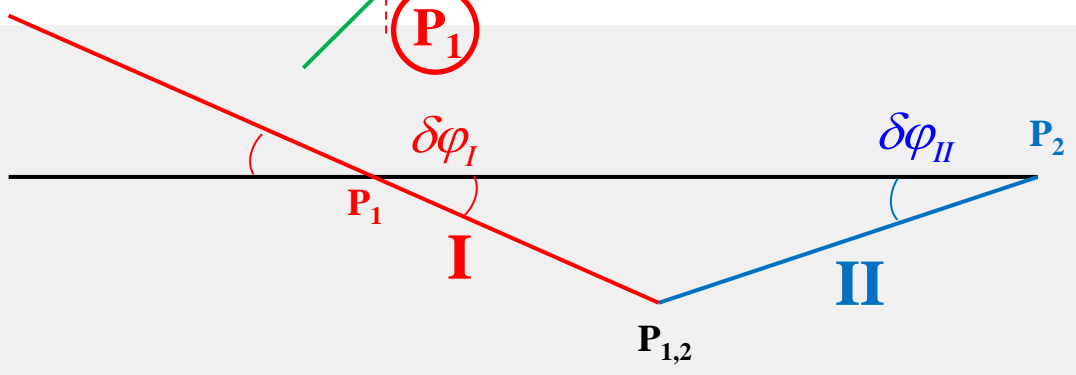
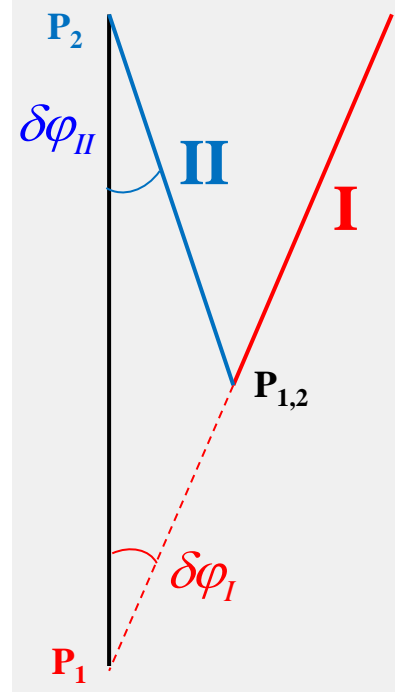
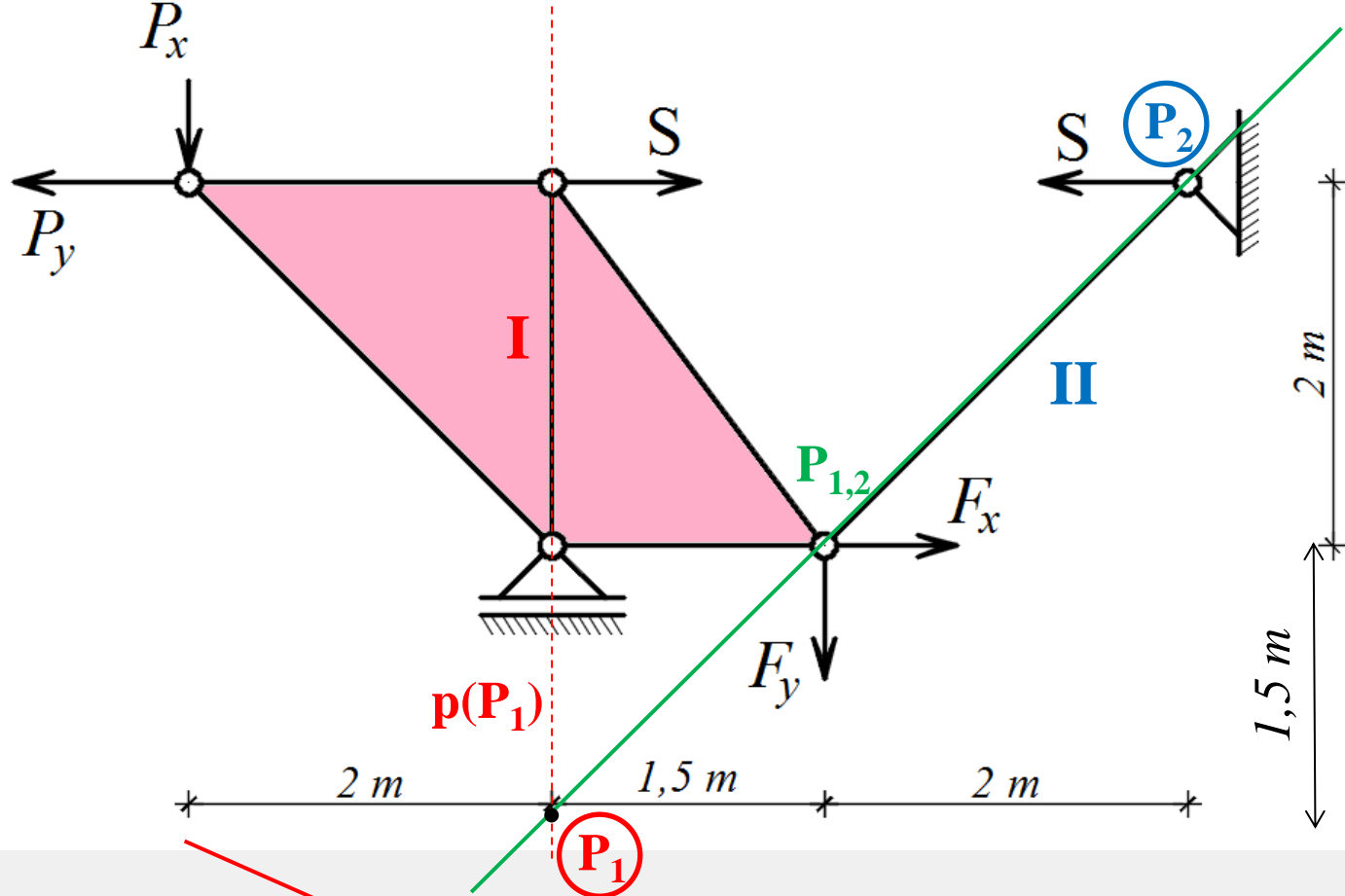


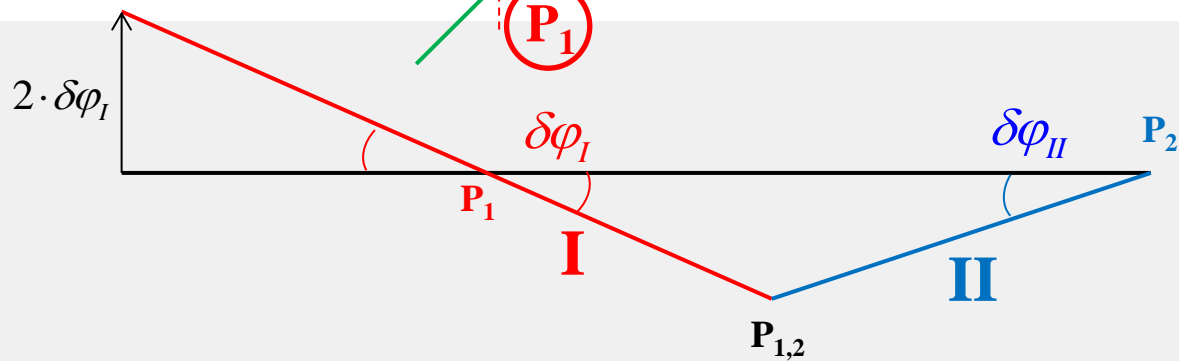
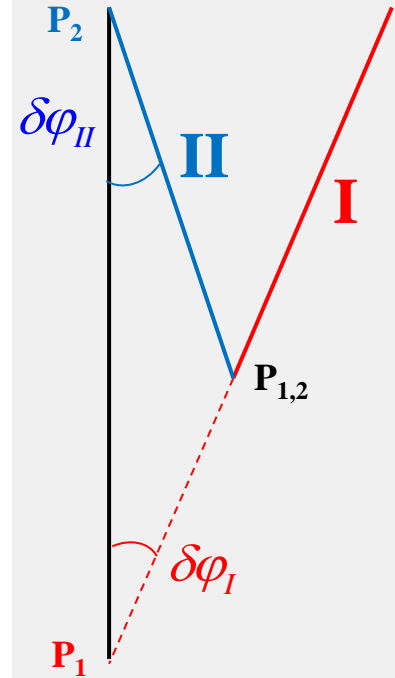
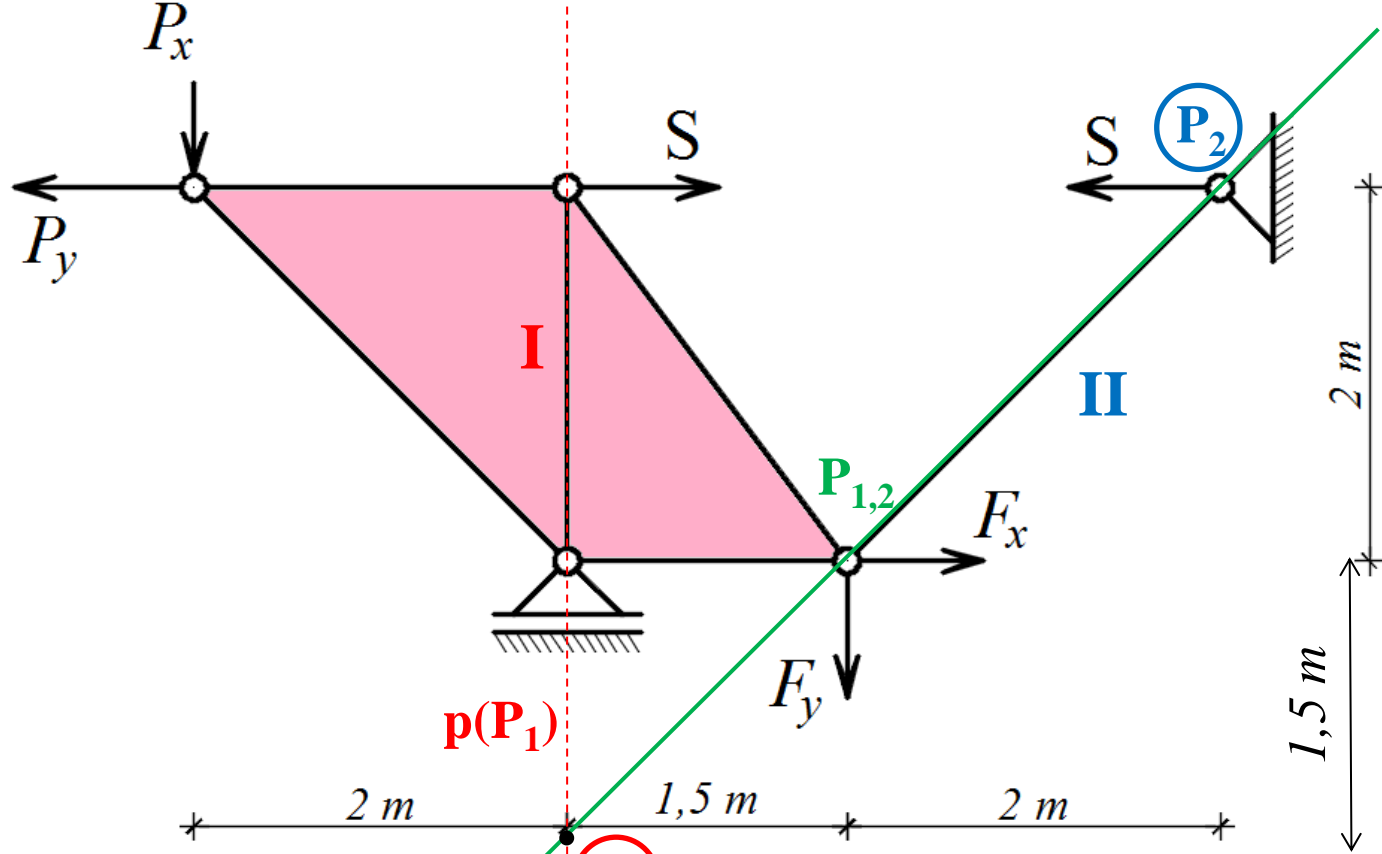


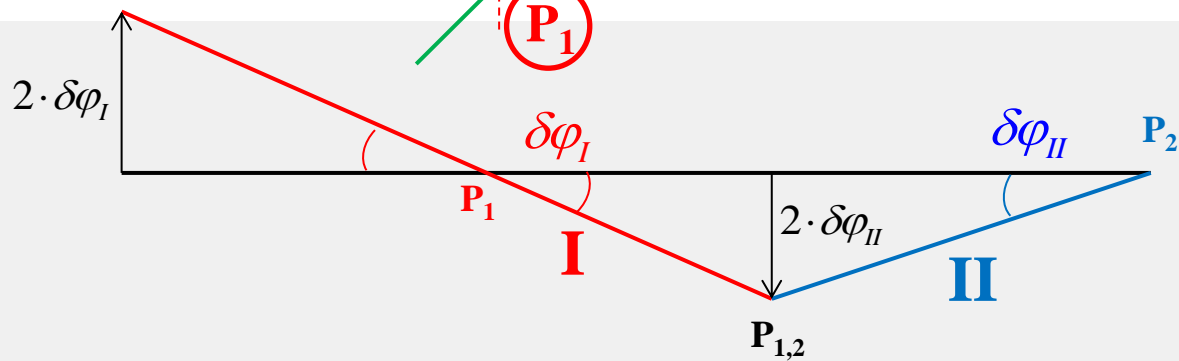
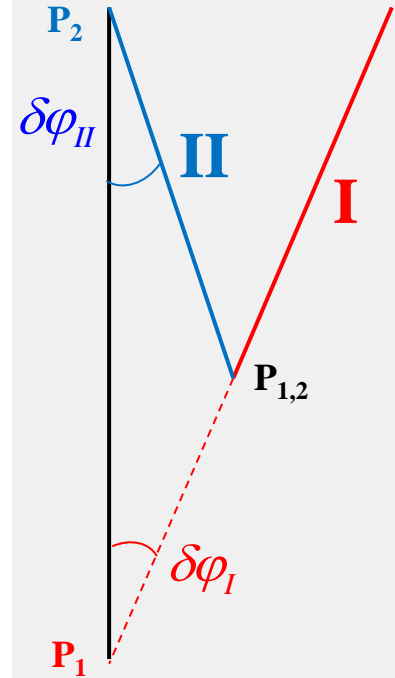
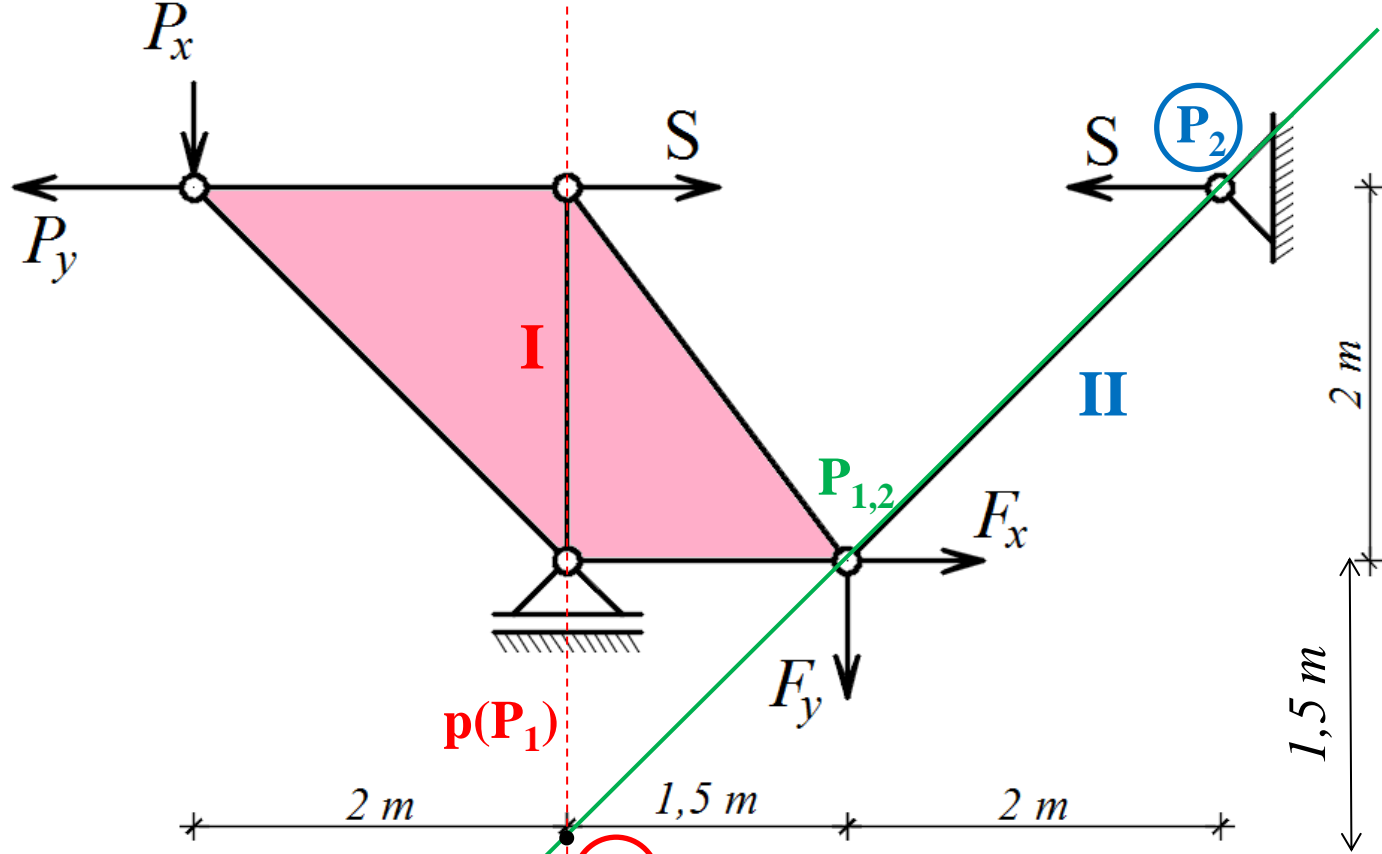


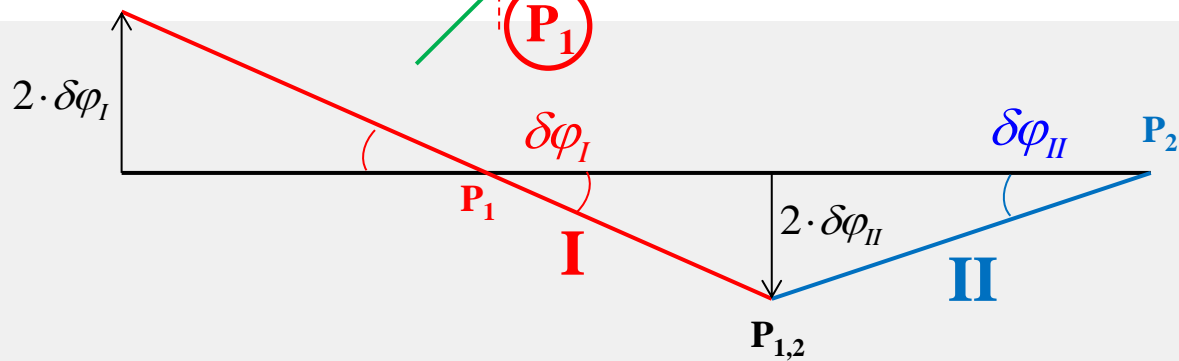
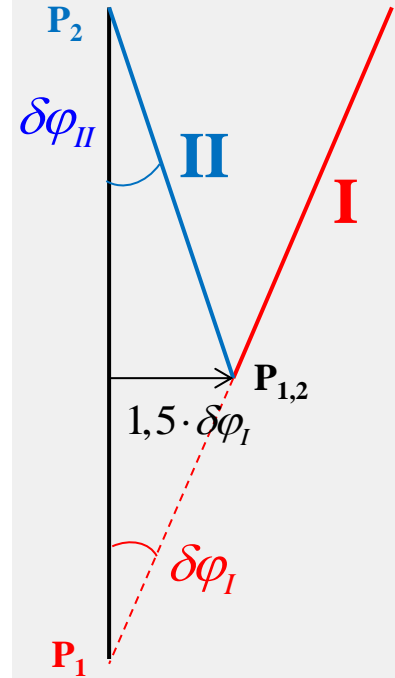
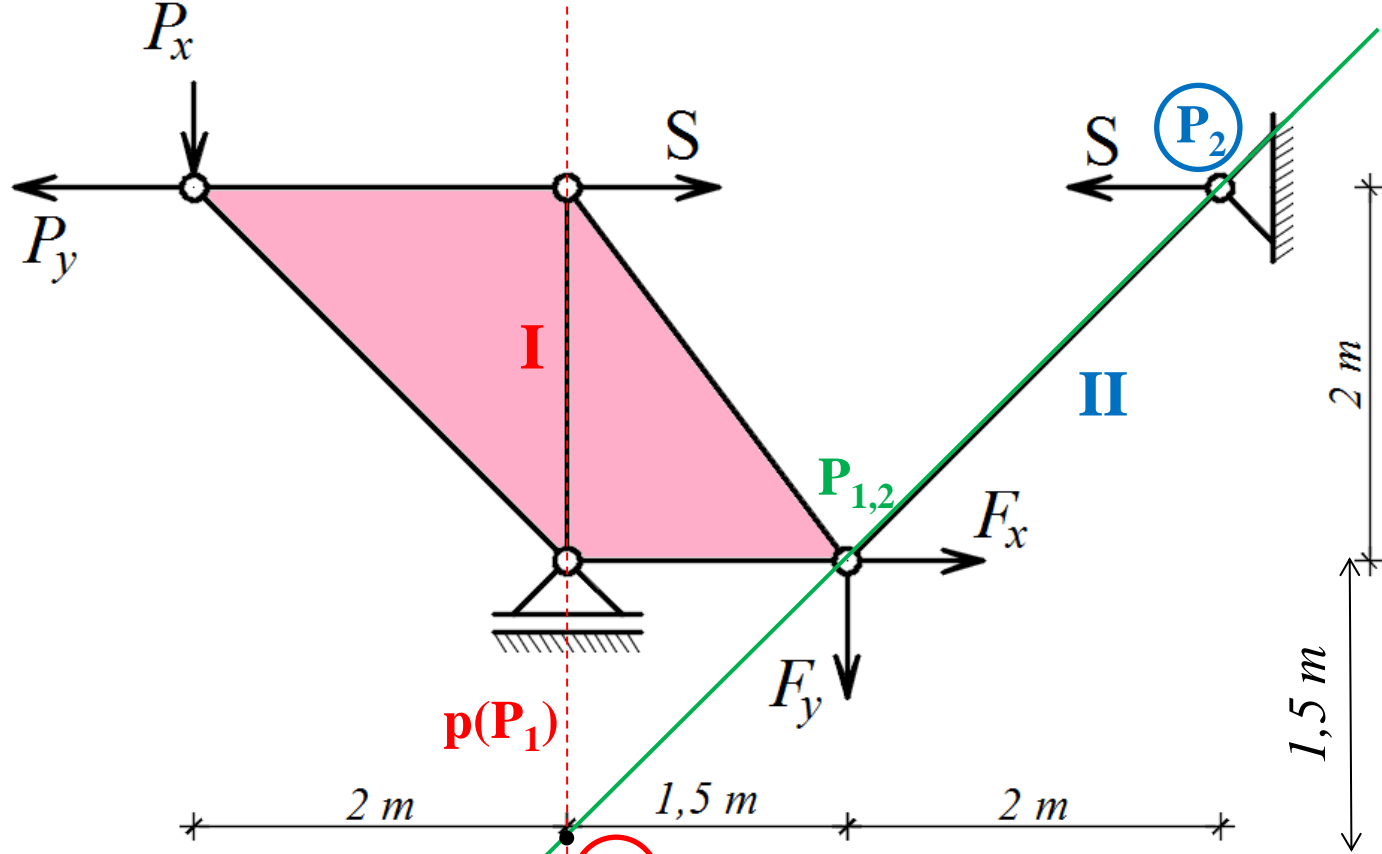


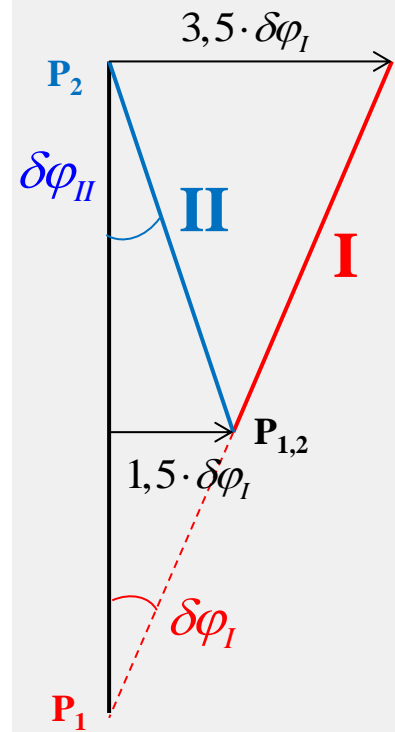
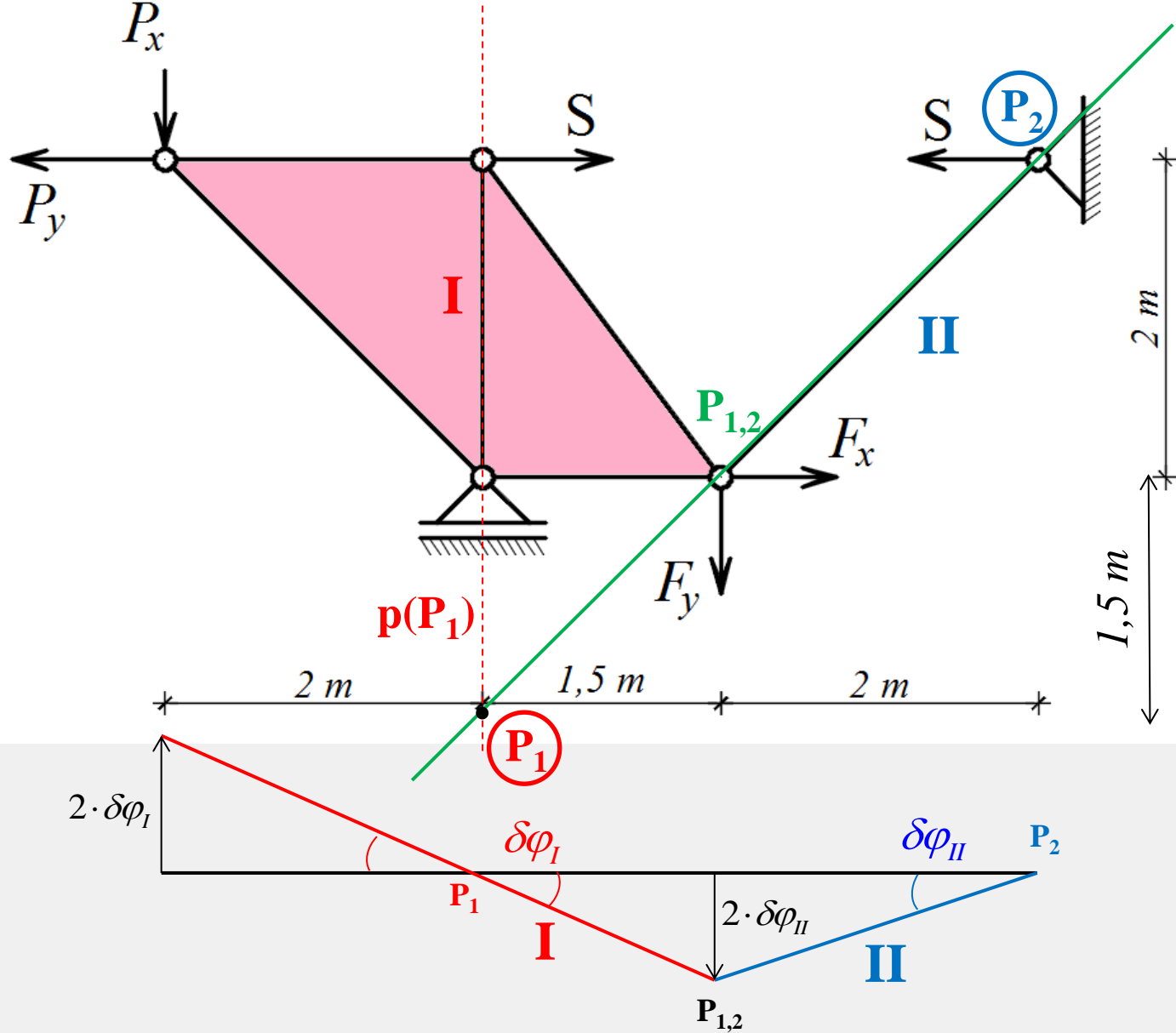


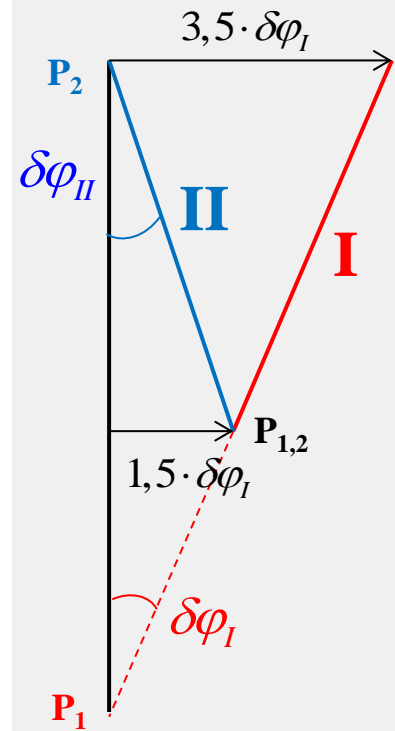
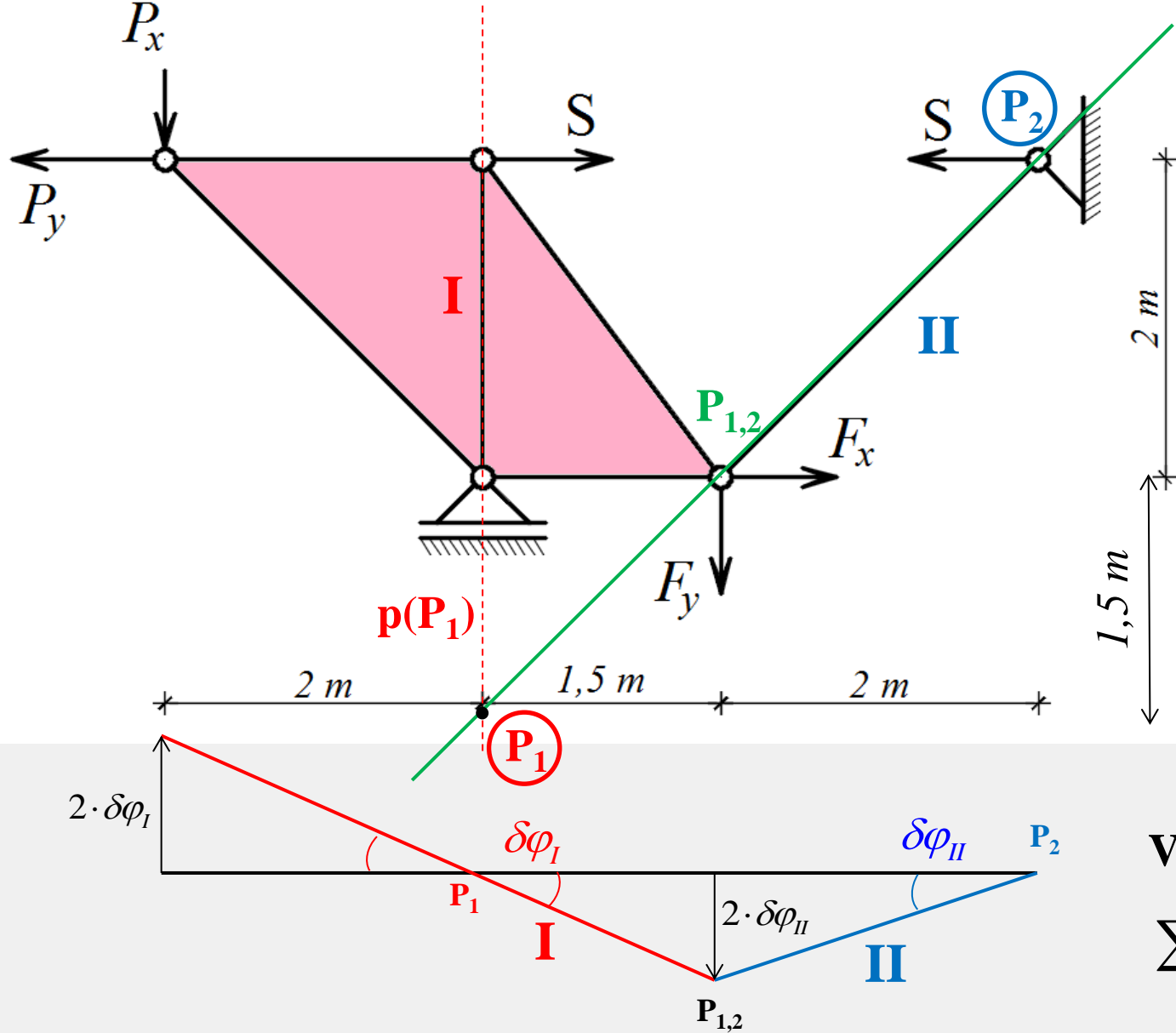






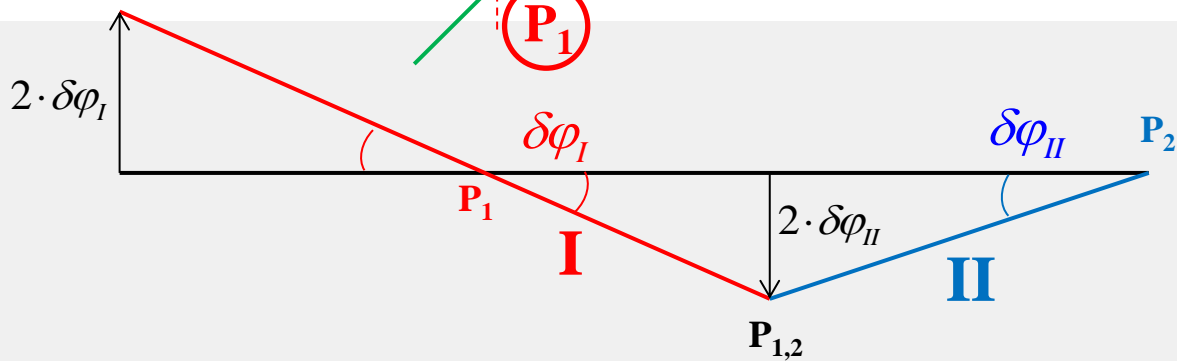
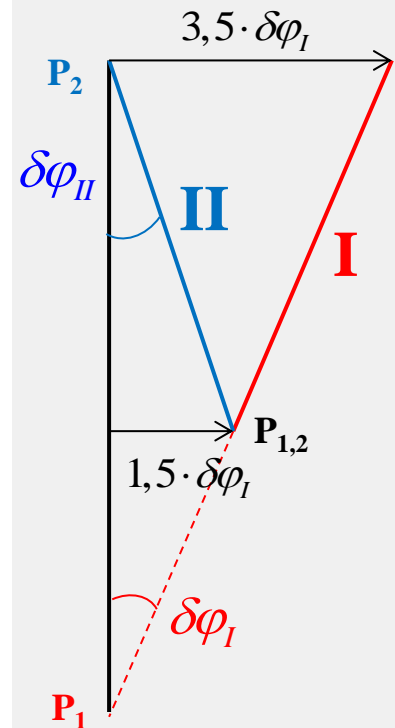
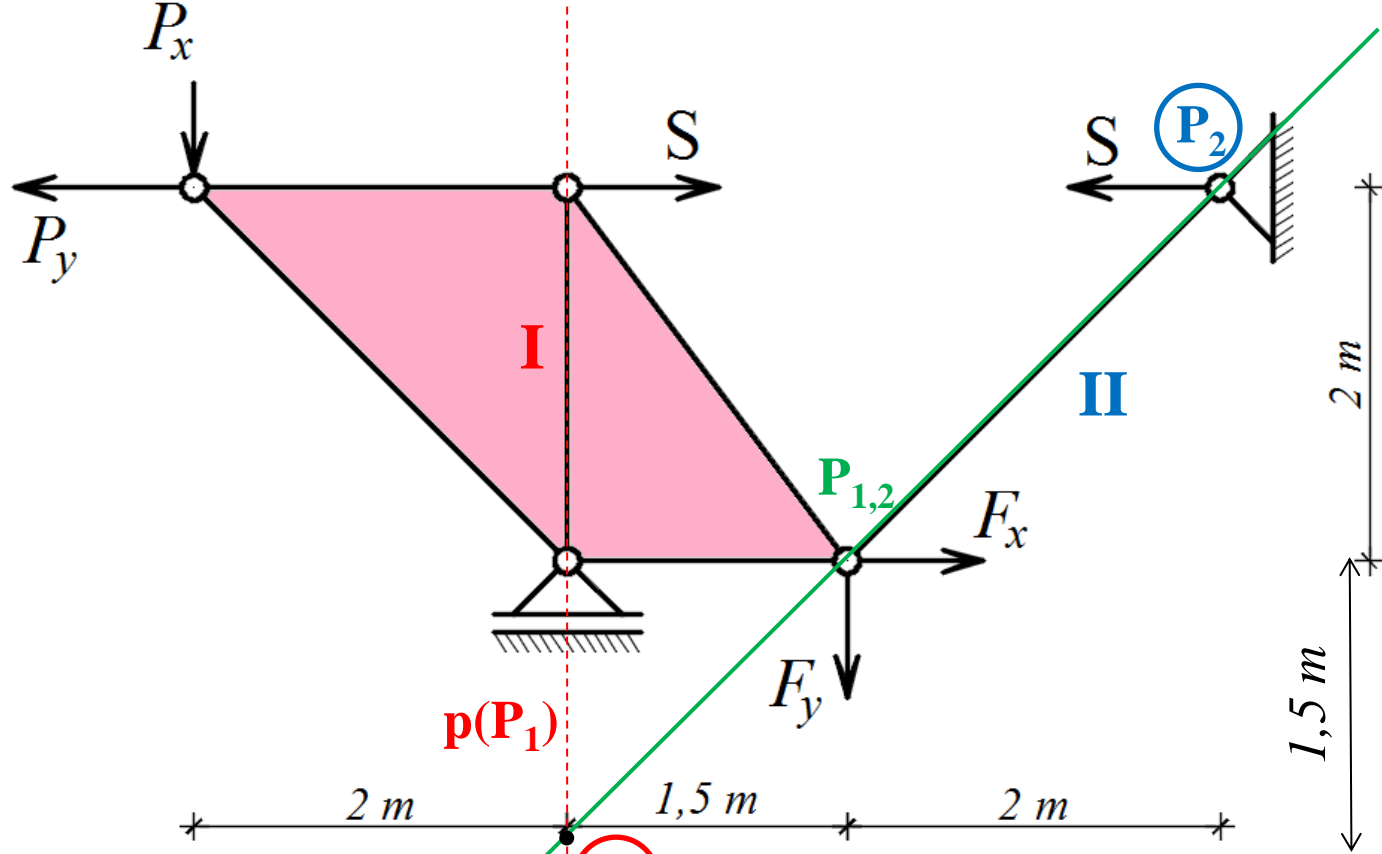






**Virtualni rad**

$$\sum \delta W = 0$$

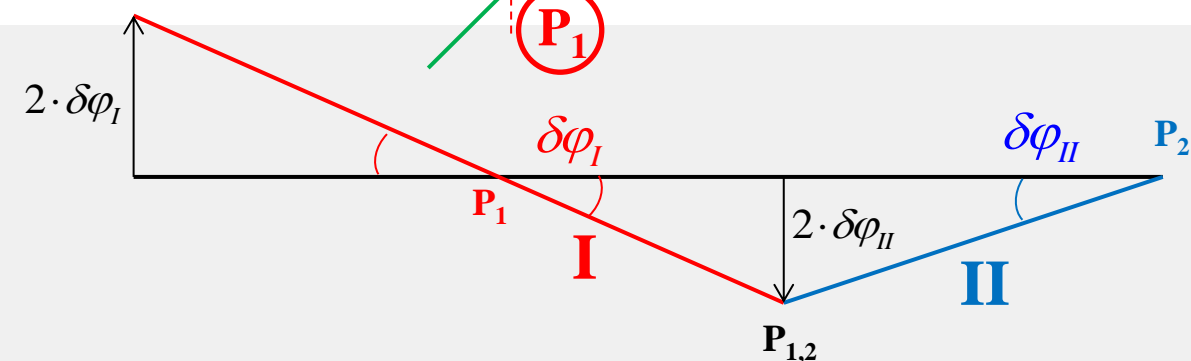
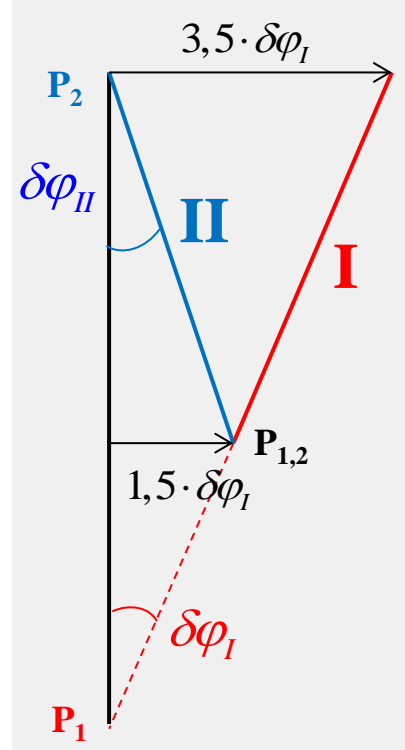
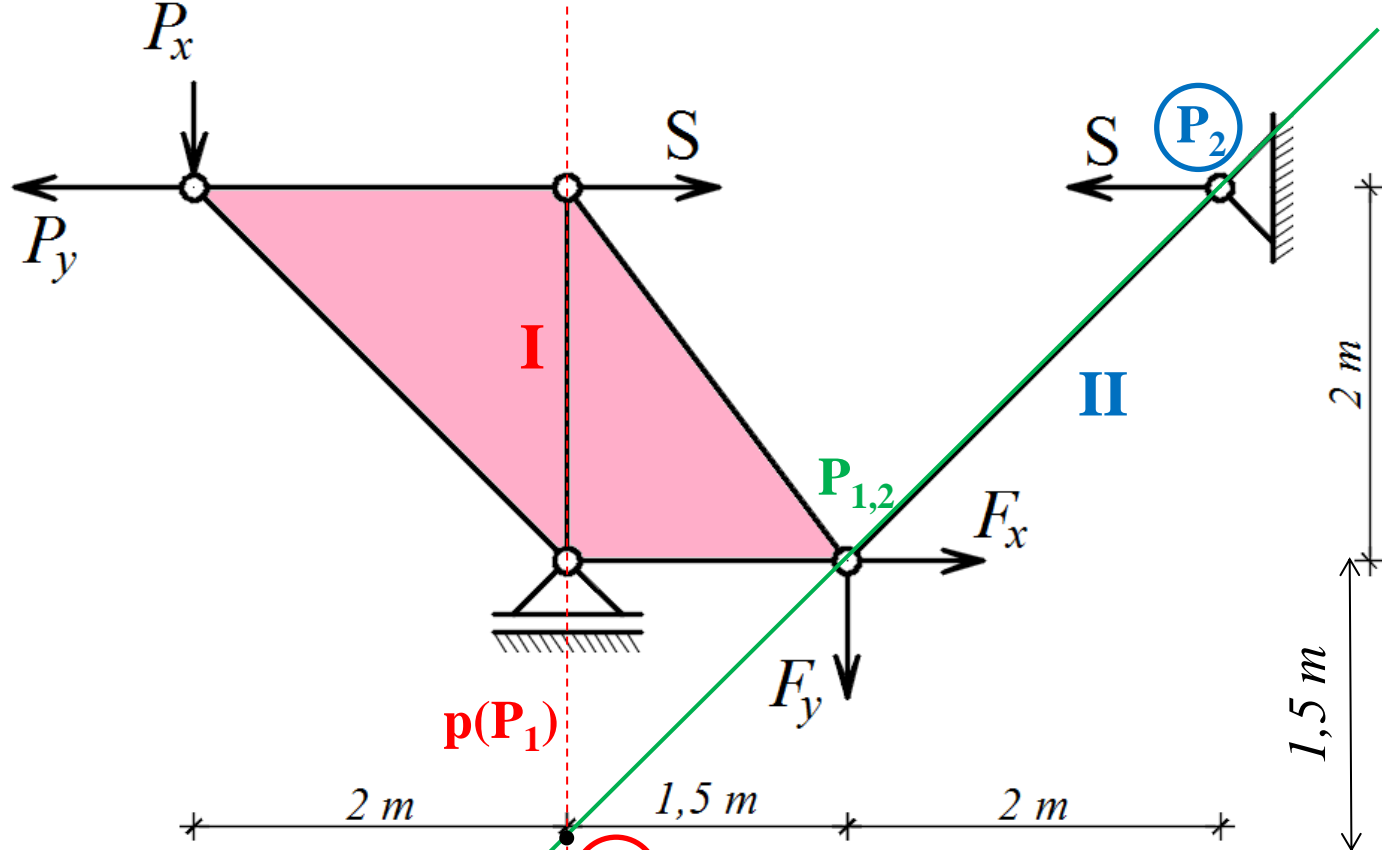


**Virtualni rad**

$$\sum \delta W = 0$$

$$-P_x \cdot 3,5 \cdot \delta\varphi_I + S \cdot 3,5 \cdot \delta\varphi_I + S \cdot 0 - P_y \cdot 2 \cdot \delta\varphi_I + F_x \cdot 1,5 \cdot \delta\varphi_I + F_y \cdot 2 \cdot \delta\varphi_{II} = 0$$





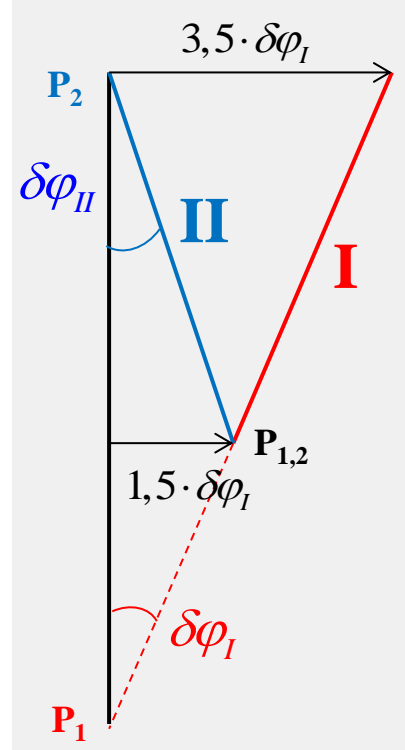
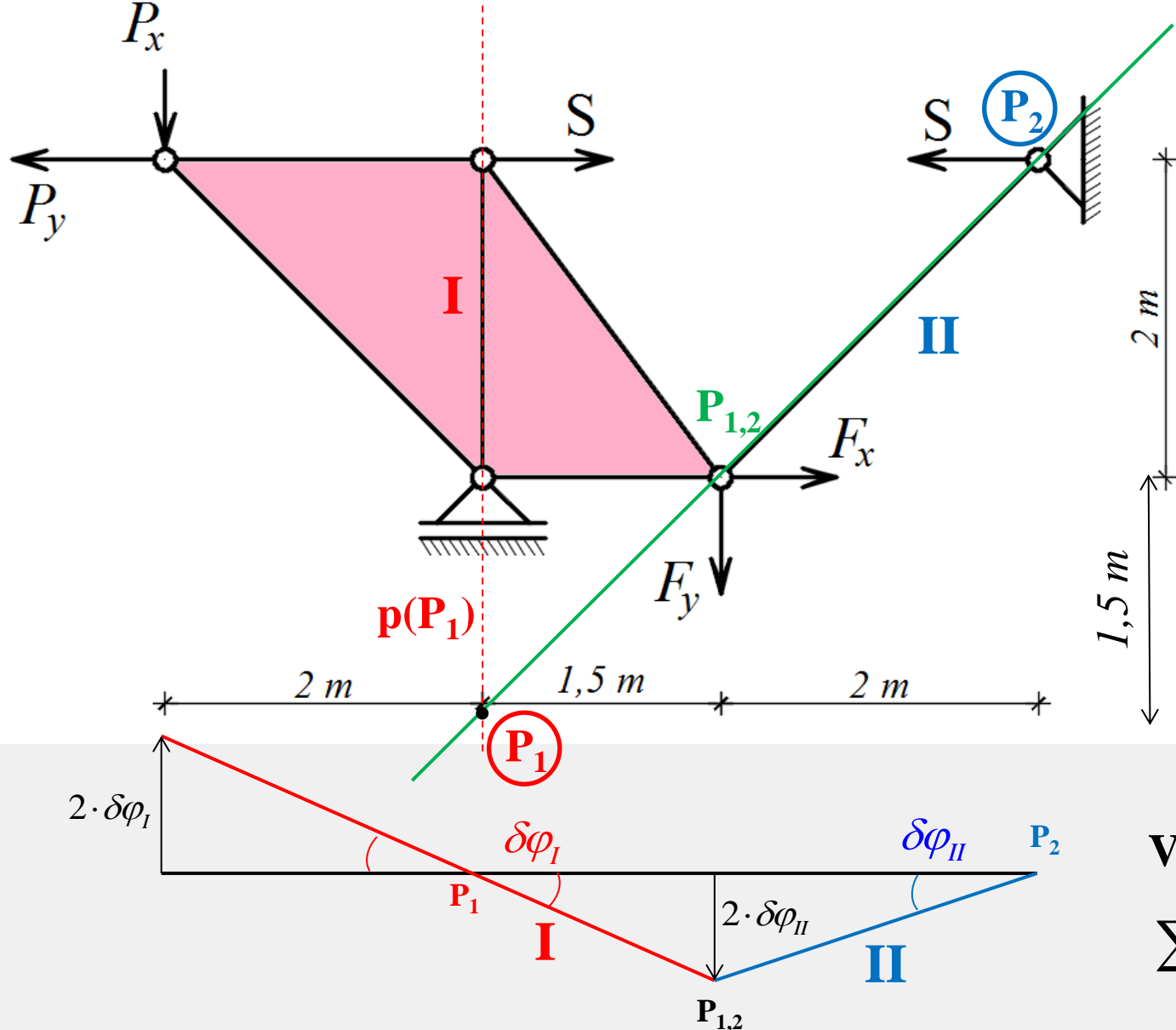
**Virtualni rad**

$$\sum \delta W = 0$$

$$-P_x \cdot 3,5 \cdot \delta\varphi_I + S \cdot 3,5 \cdot \delta\varphi_I + S \cdot 0 - P_y \cdot 2 \cdot \delta\varphi_I + F_x \cdot 1,5 \cdot \delta\varphi_I + F_y \cdot 2 \cdot \delta\varphi_{II} = 0$$

$$2 \cdot \delta\varphi_{II} = 1,5 \cdot \delta\varphi_I$$

$$\delta\varphi_{II} = 0,75 \cdot \delta\varphi_I$$



**Virtualni rad**

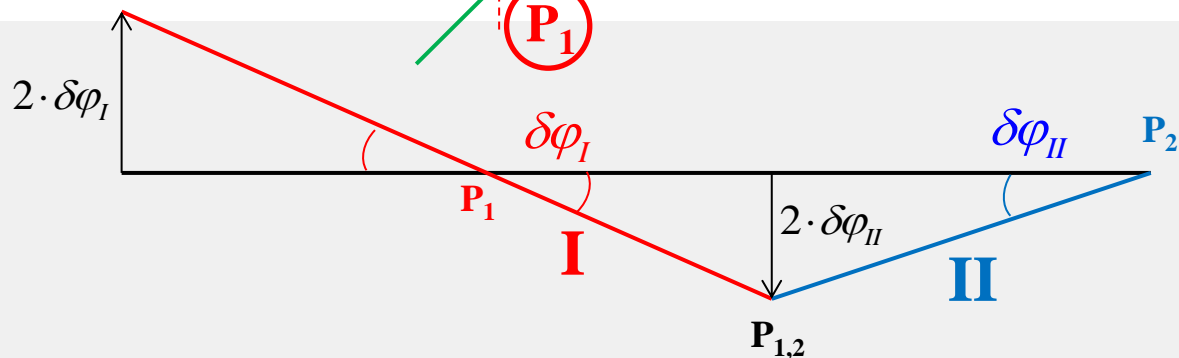
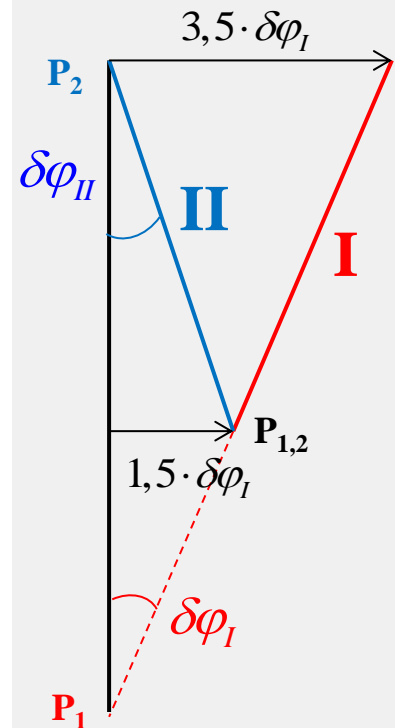
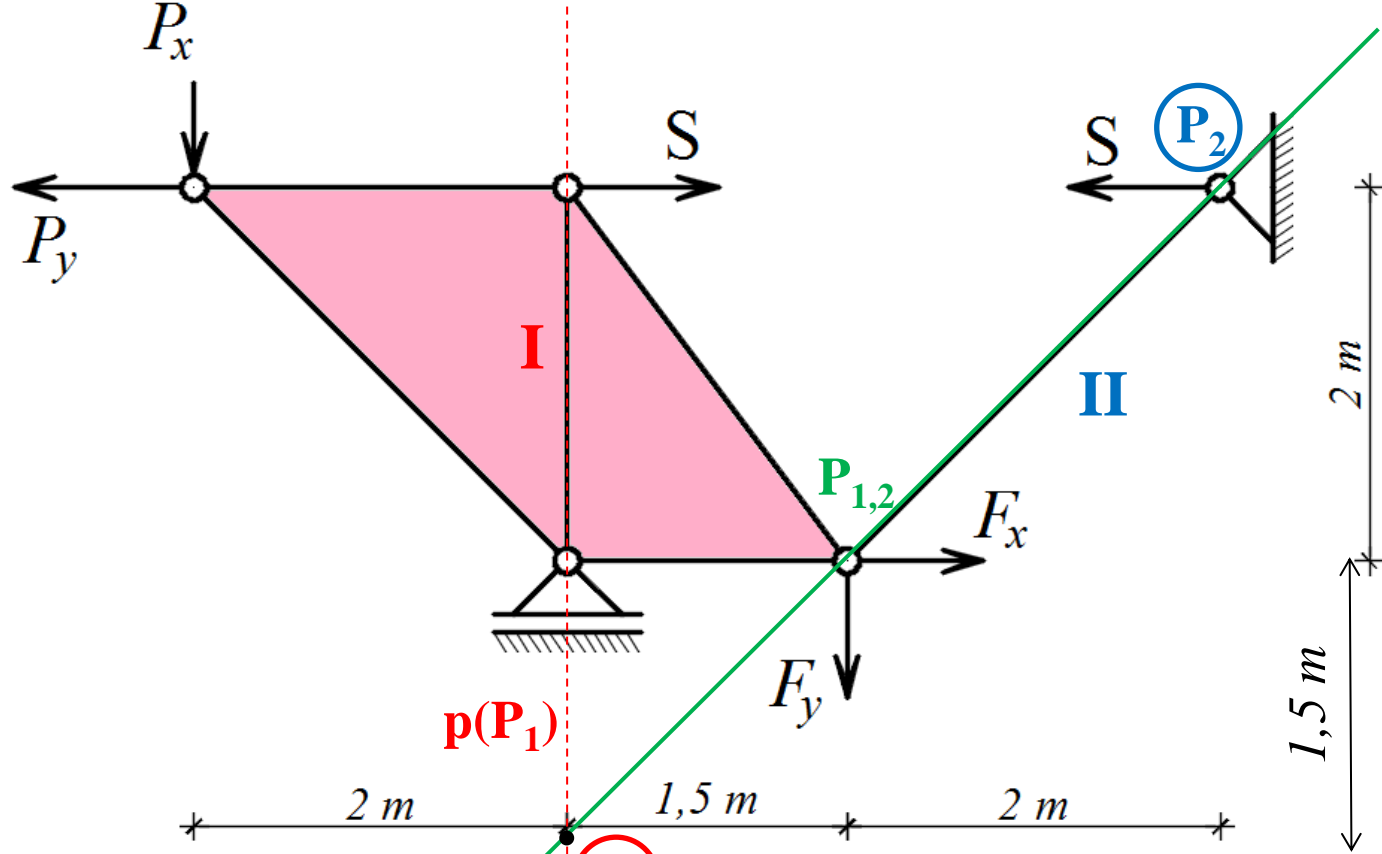
$$\sum \delta W = 0$$

$$-P_x \cdot 3,5 \cdot \delta\varphi_I + S \cdot 3,5 \cdot \delta\varphi_I + S \cdot 0 - P_y \cdot 2 \cdot \delta\varphi_I + F_x \cdot 1,5 \cdot \delta\varphi_I + F_y \cdot 2 \cdot \delta\varphi_{II} = 0$$

$$-P_x \cdot 3,5 \cdot \delta\varphi_I + S \cdot 3,5 \cdot \delta\varphi_I + S \cdot 0 - P_y \cdot 2 \cdot \delta\varphi_I + F_x \cdot 1,5 \cdot \delta\varphi_I + F_y \cdot 1,5 \cdot \delta\varphi_I = 0$$

$$2 \cdot \delta\varphi_{II} = 1,5 \cdot \delta\varphi_I$$

$$\delta\varphi_{II} = 0,75 \cdot \delta\varphi_I$$



### Virtualni rad

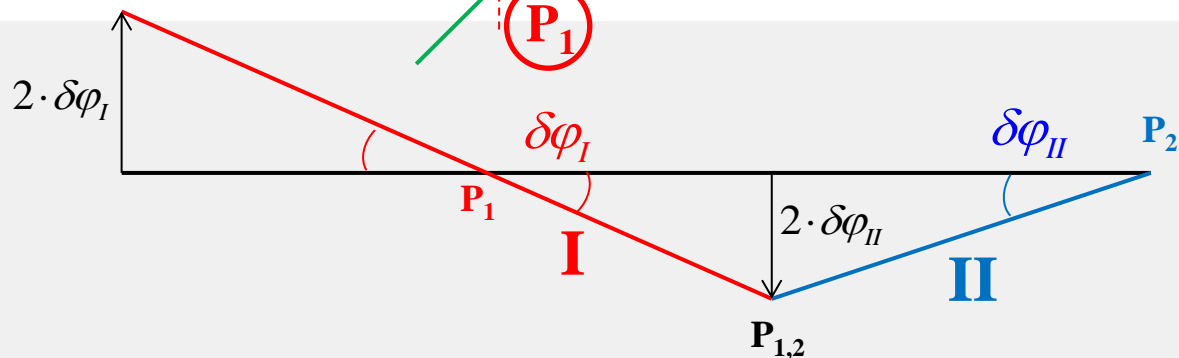
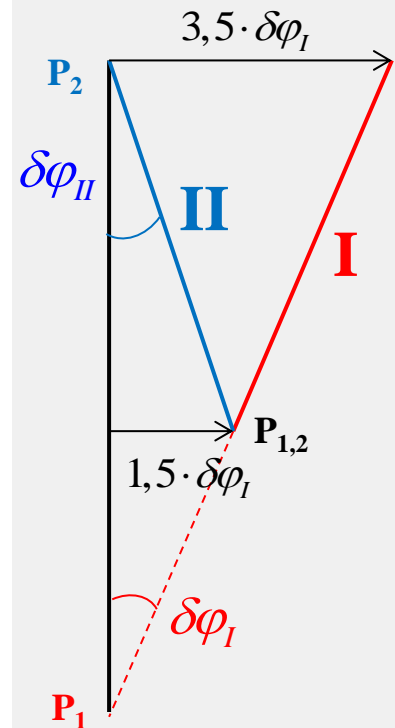
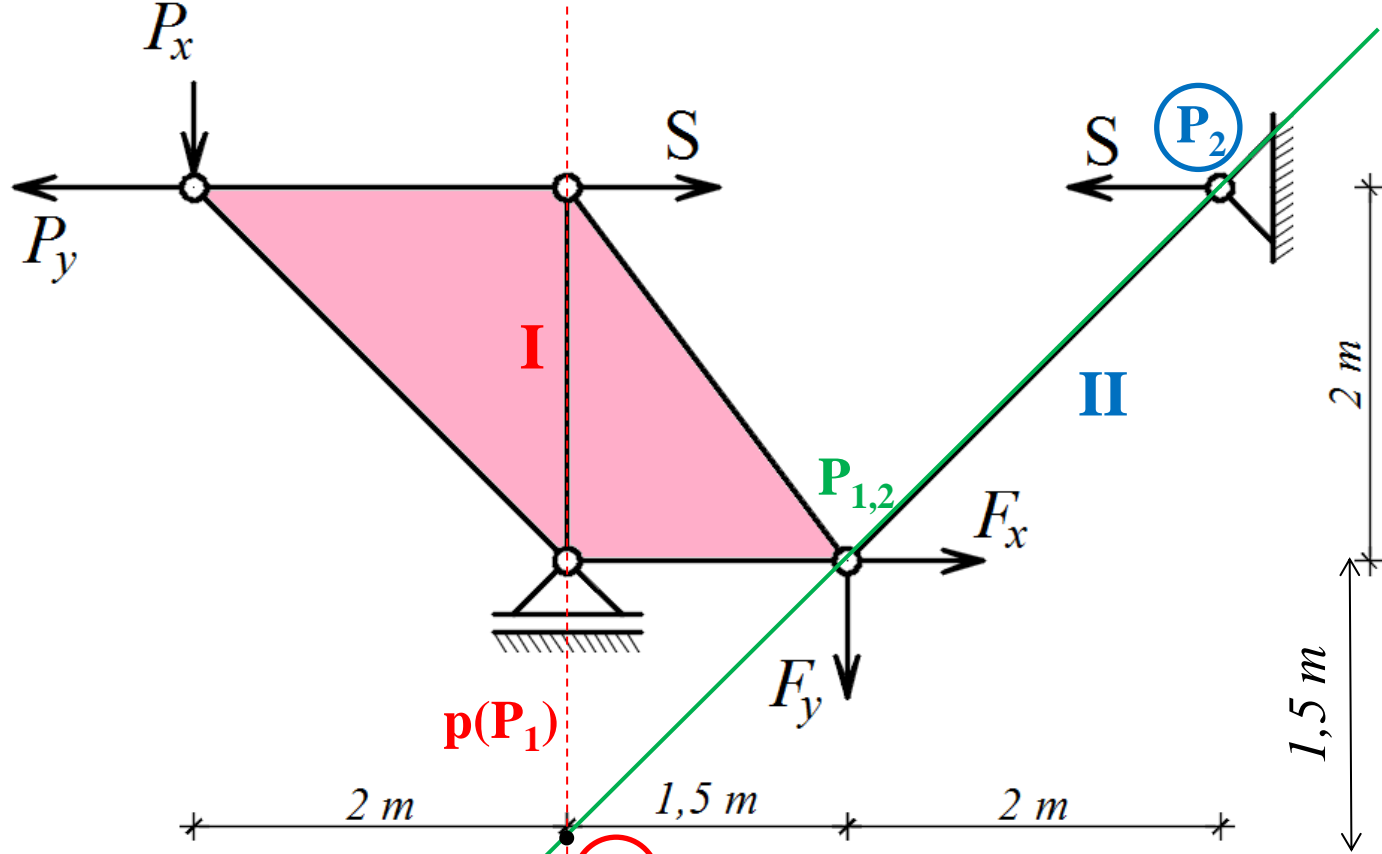
$$\sum \delta W = 0$$

$$-P_x \cdot 3,5 \cdot \delta\varphi_I + S \cdot 3,5 \cdot \delta\varphi_I + S \cdot 0 - P_y \cdot 2 \cdot \delta\varphi_I + F_x \cdot 1,5 \cdot \delta\varphi_I + F_y \cdot 2 \cdot \delta\varphi_{II} = 0$$

~~$$-P_x \cdot 3,5 \cdot \delta\varphi_I + S \cdot 3,5 \cdot \delta\varphi_I + S \cdot 0 - P_y \cdot 2 \cdot \delta\varphi_I + F_x \cdot 1,5 \cdot \delta\varphi_I + F_y \cdot 1,5 \cdot \delta\varphi_I = 0$$~~

$$2 \cdot \delta\varphi_{II} = 1,5 \cdot \delta\varphi_I$$

$$\delta\varphi_{II} = 0,75 \cdot \delta\varphi_I$$



### Virtualni rad

$$\sum \delta W = 0$$

$$-P_x \cdot 3,5 \cdot \delta\varphi_I + S \cdot 3,5 \cdot \delta\varphi_I + S \cdot 0 - P_y \cdot 2 \cdot \delta\varphi_I + F_x \cdot 1,5 \cdot \delta\varphi_I + F_y \cdot 2 \cdot \delta\varphi_{II} = 0$$

~~$$-P_x \cdot 3,5 \cdot \delta\varphi_I + S \cdot 3,5 \cdot \delta\varphi_I + S \cdot 0 - P_y \cdot 2 \cdot \delta\varphi_I + F_x \cdot 1,5 \cdot \delta\varphi_I + F_y \cdot 1,5 \cdot \delta\varphi_I = 0$$~~

$$S = 1,576 \text{ kN}$$

$$2 \cdot \delta\varphi_{II} = 1,5 \cdot \delta\varphi_I$$

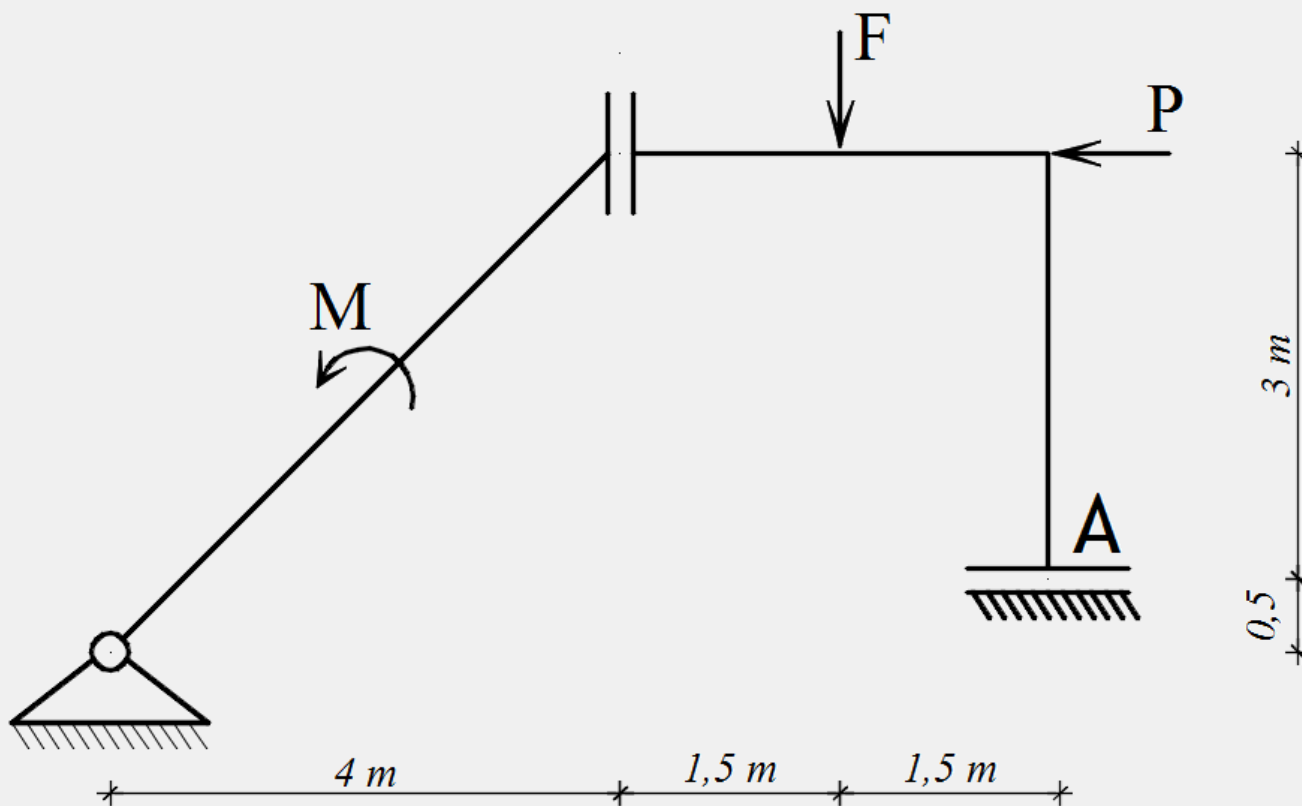
$$\delta\varphi_{II} = 0,75 \cdot \delta\varphi_I$$

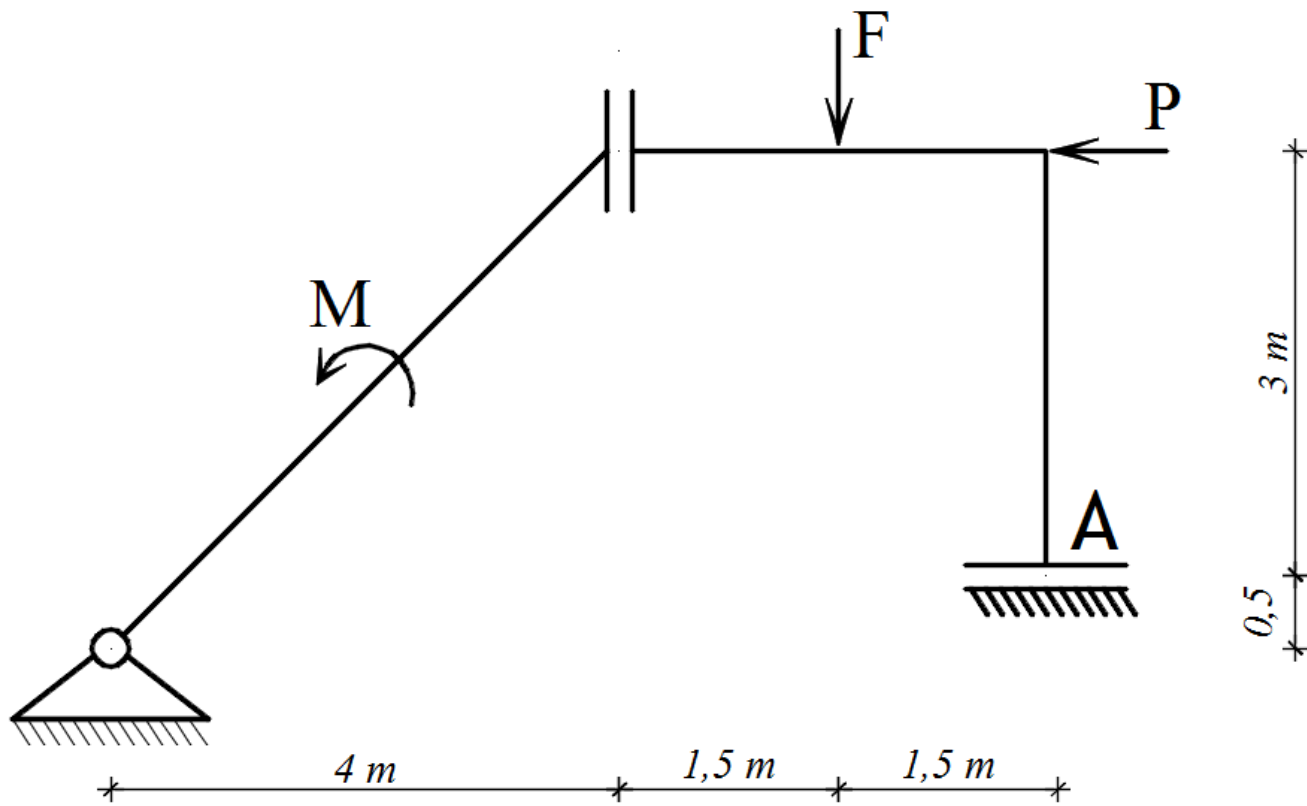
ZA ZADANI STATIČKI SUSTAV POTREBNO JE ODREDITI REAKTIVNI MOMENT U OSLONCU A.

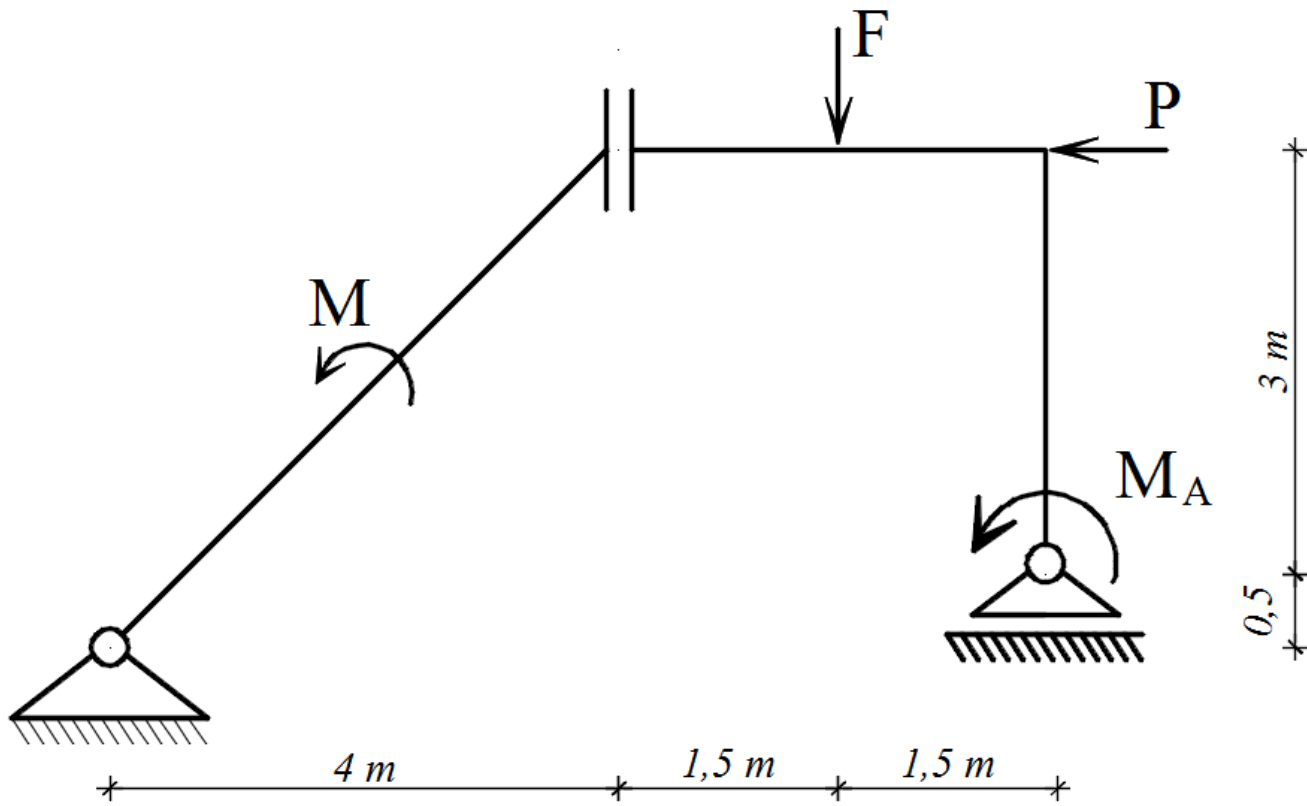
$$P = 6 \text{ kN}$$

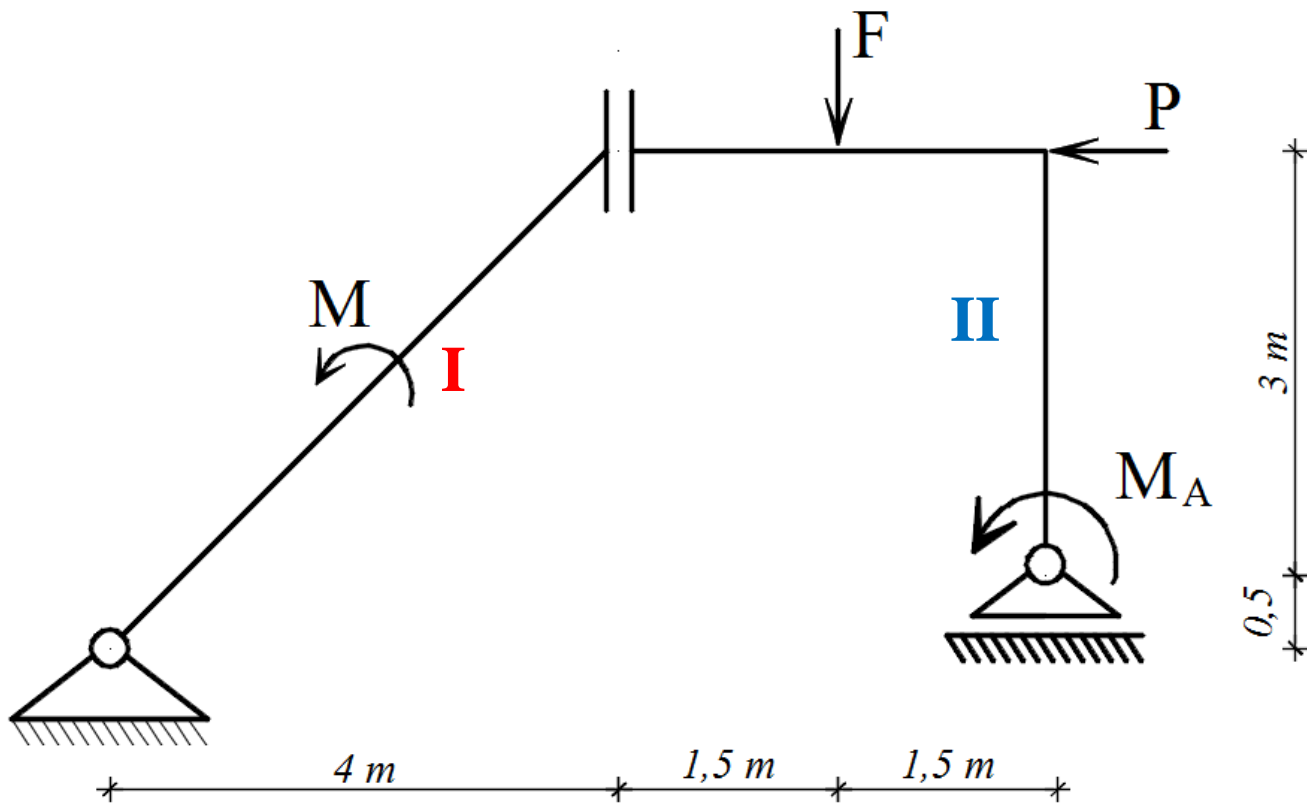
$$F = 8 \text{ kN}$$

$$M = 2 \text{ kNm}$$

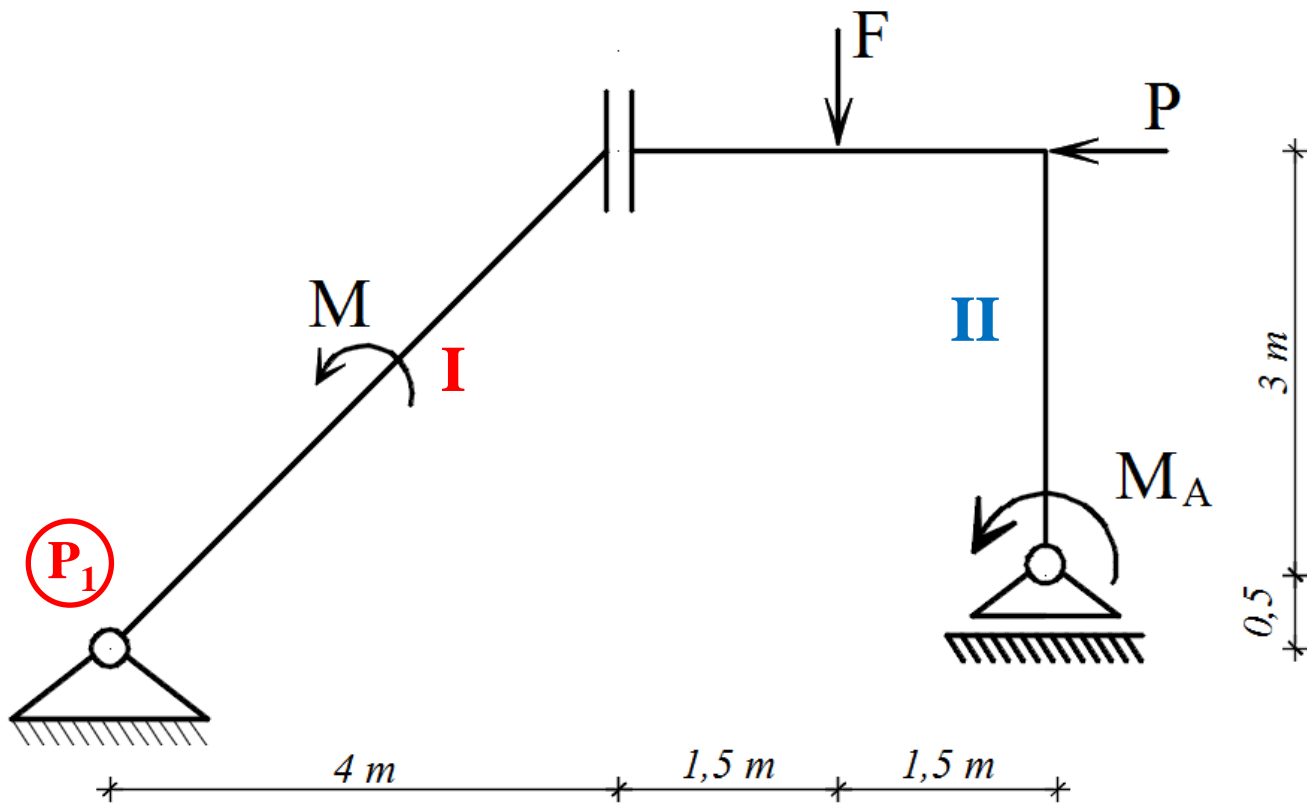


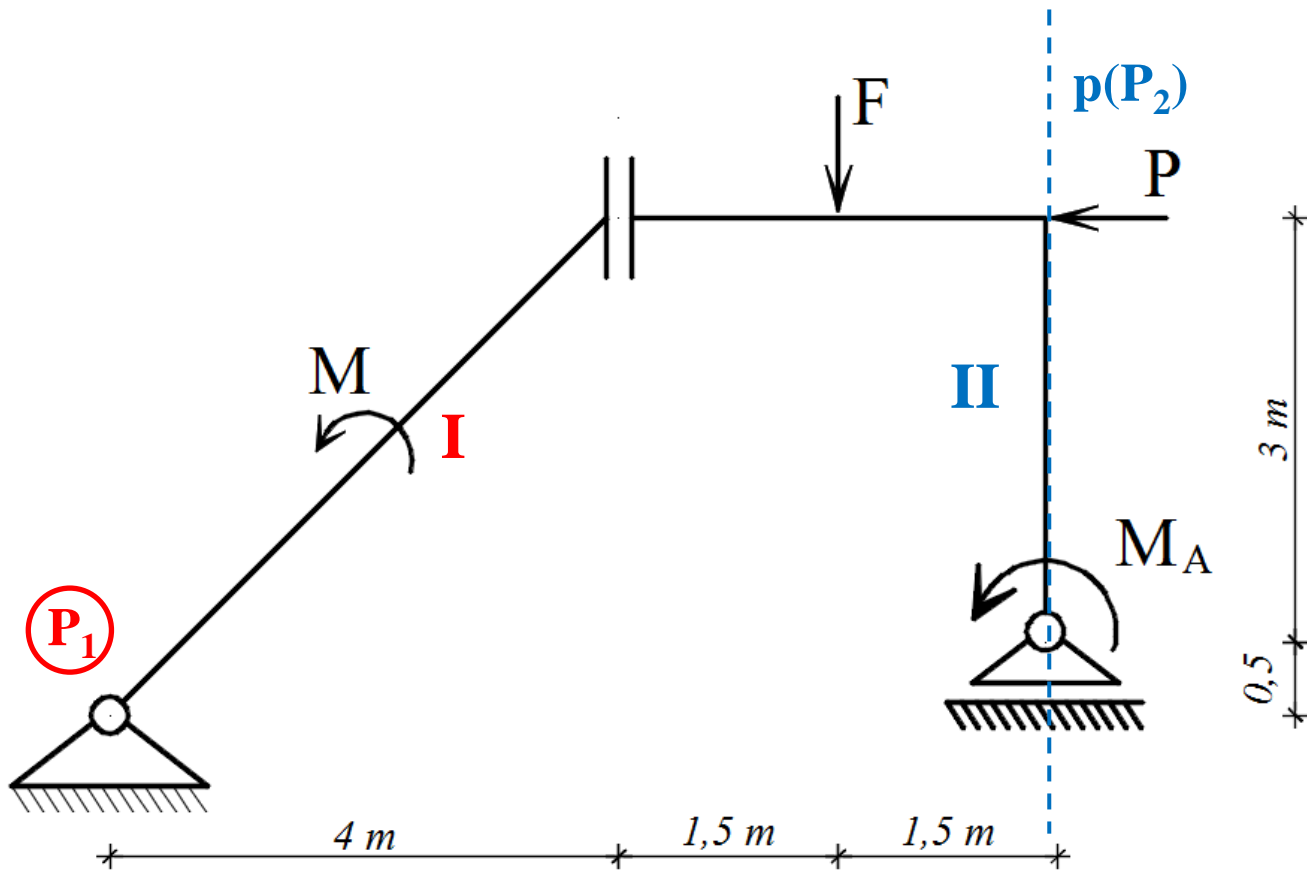


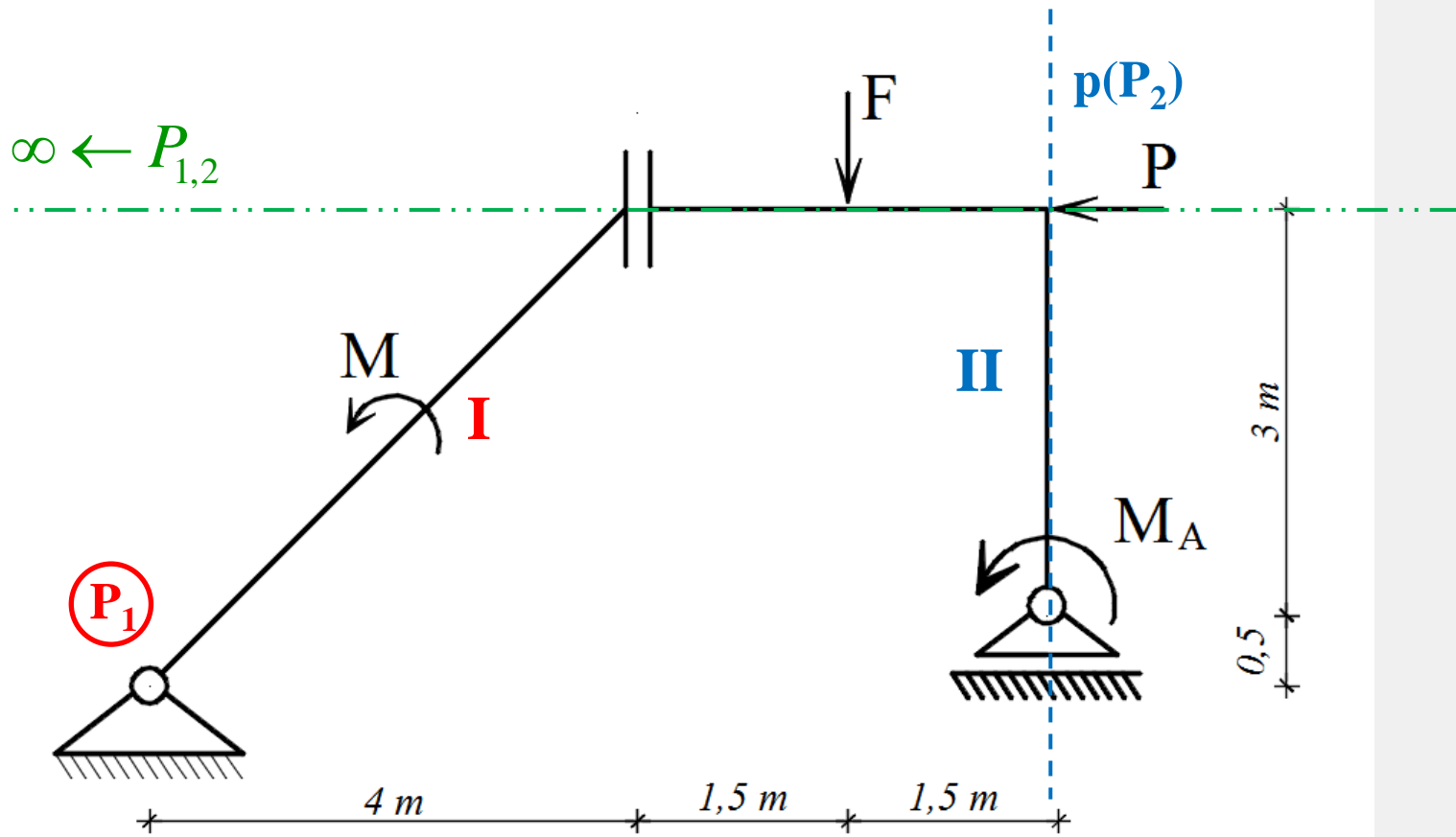


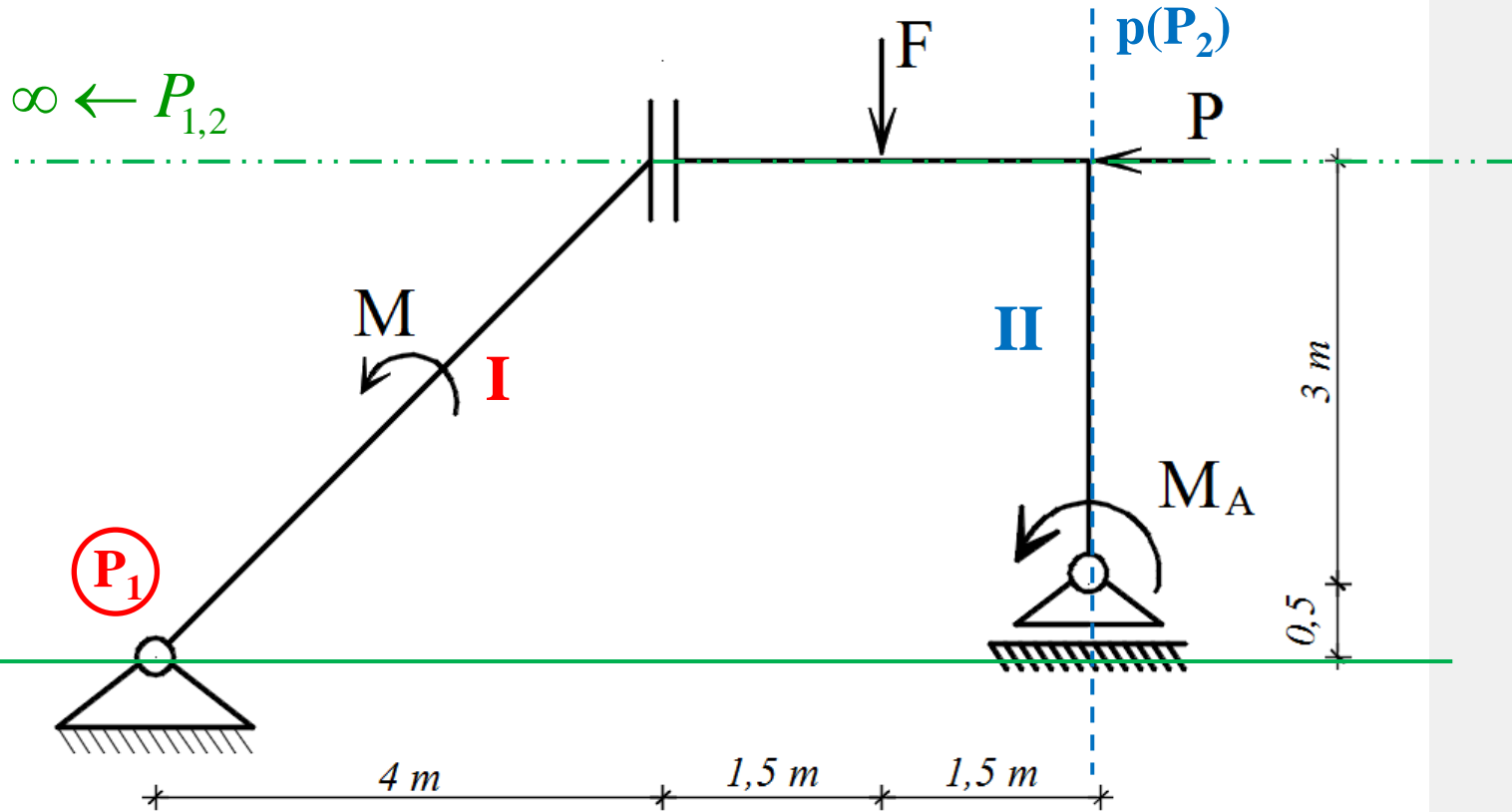


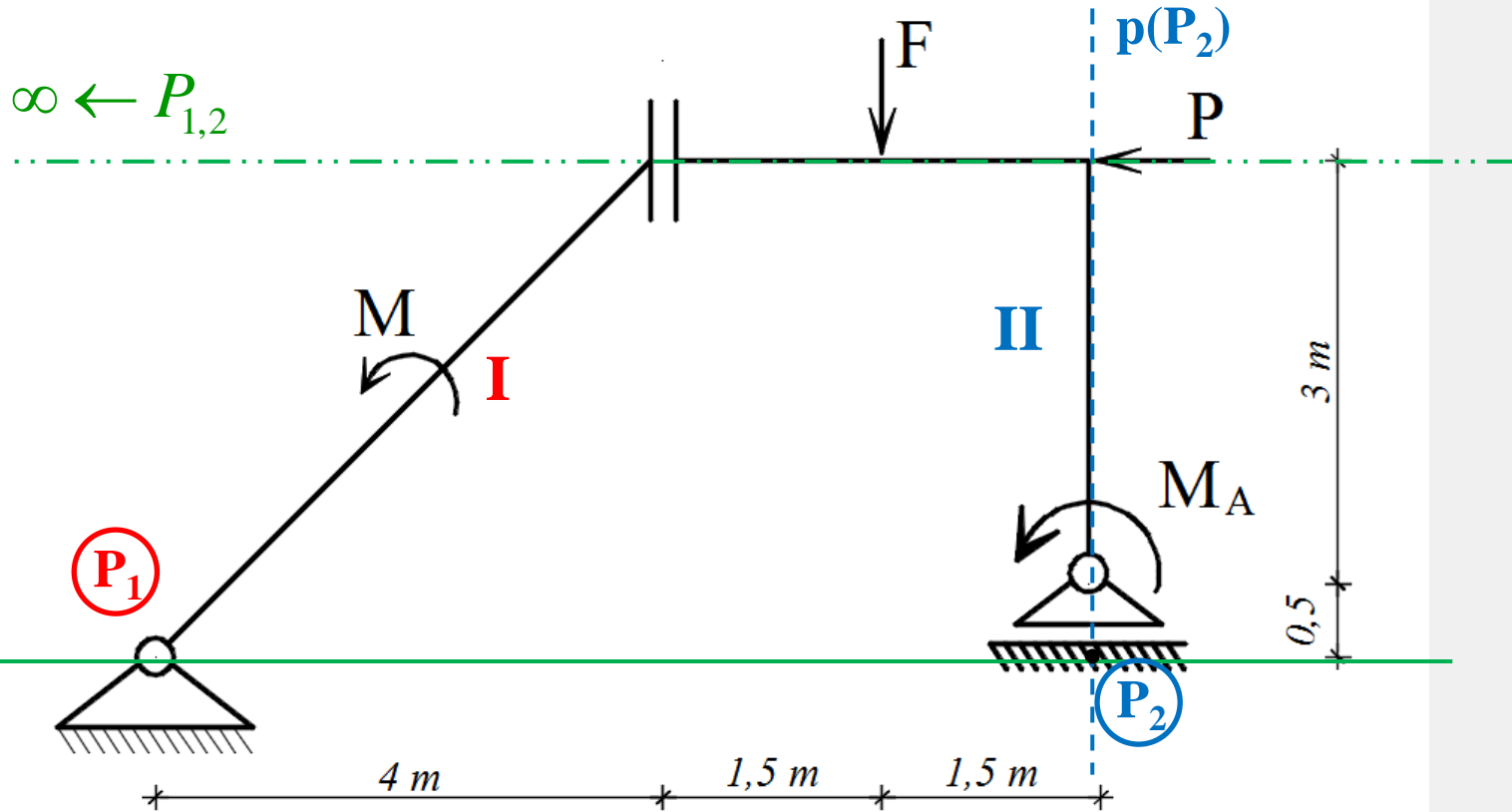


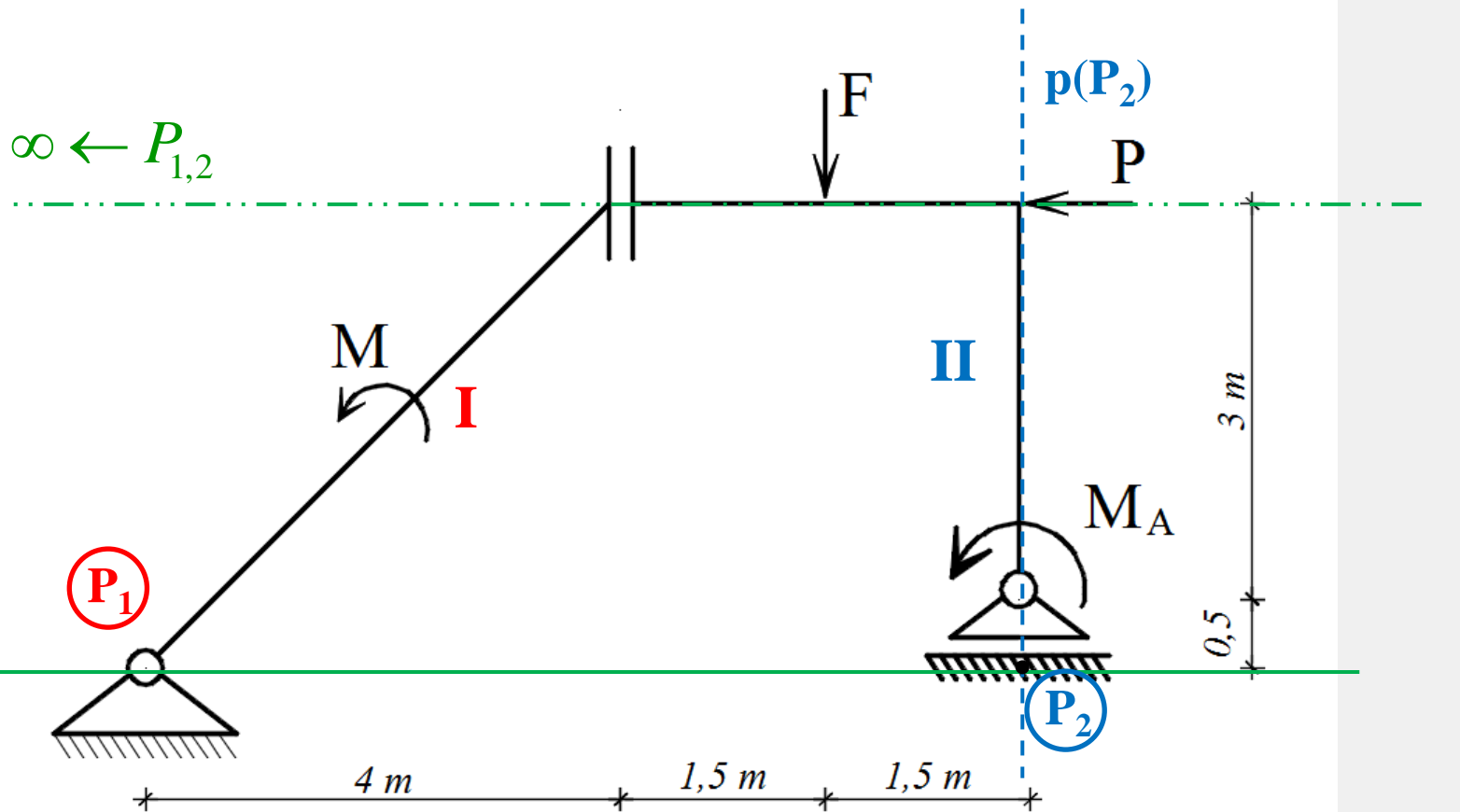






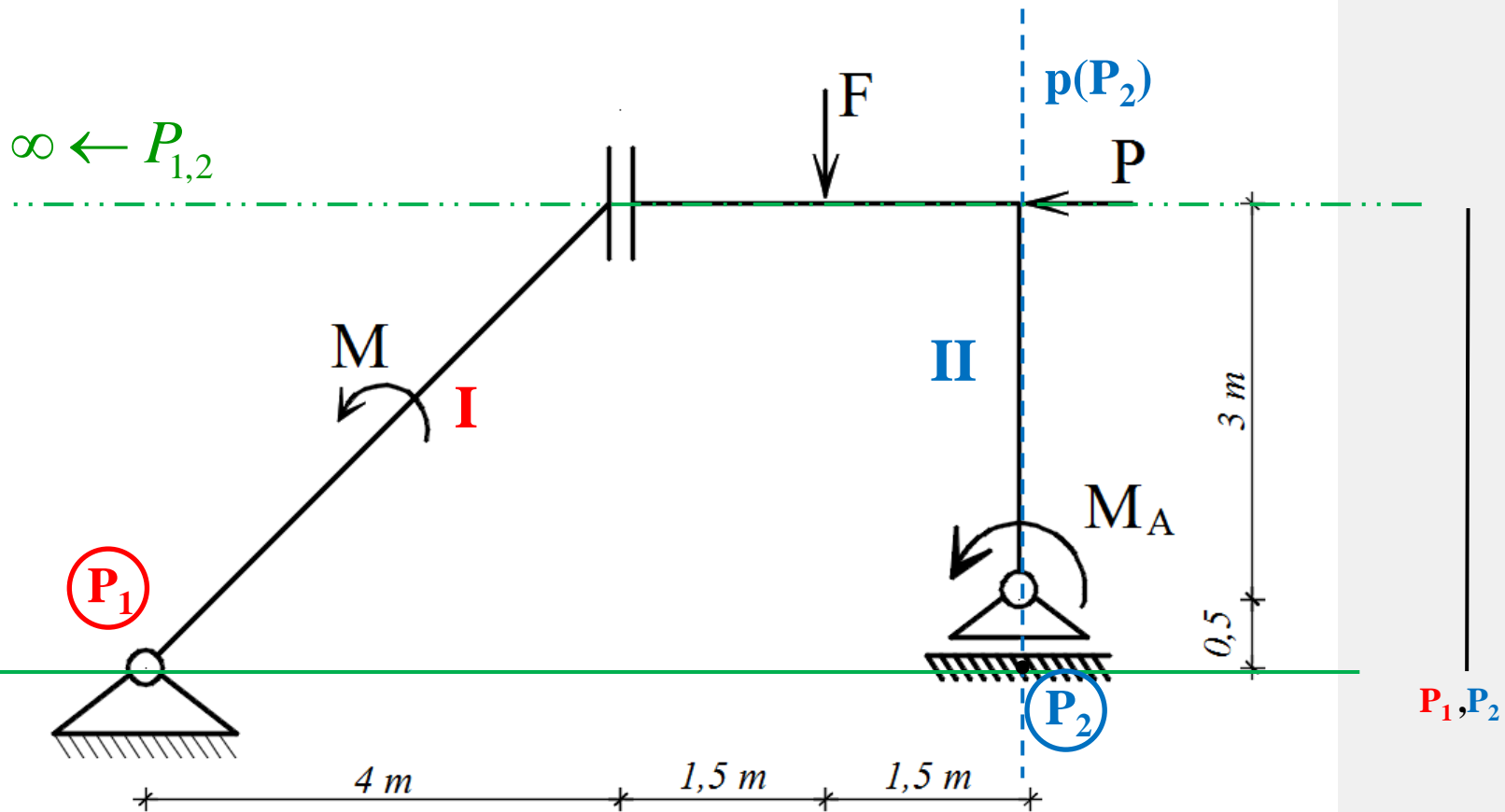






**Uvjet spoja**

$$\delta\varphi_I = \delta\varphi_{II}$$

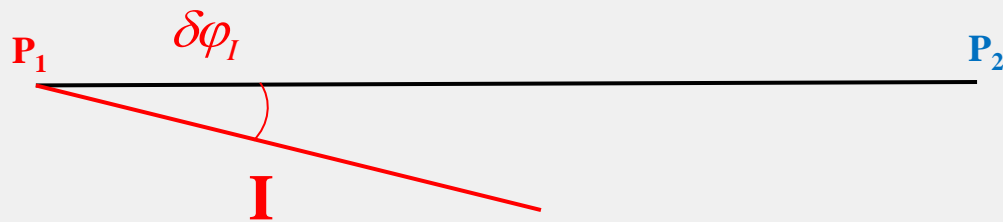
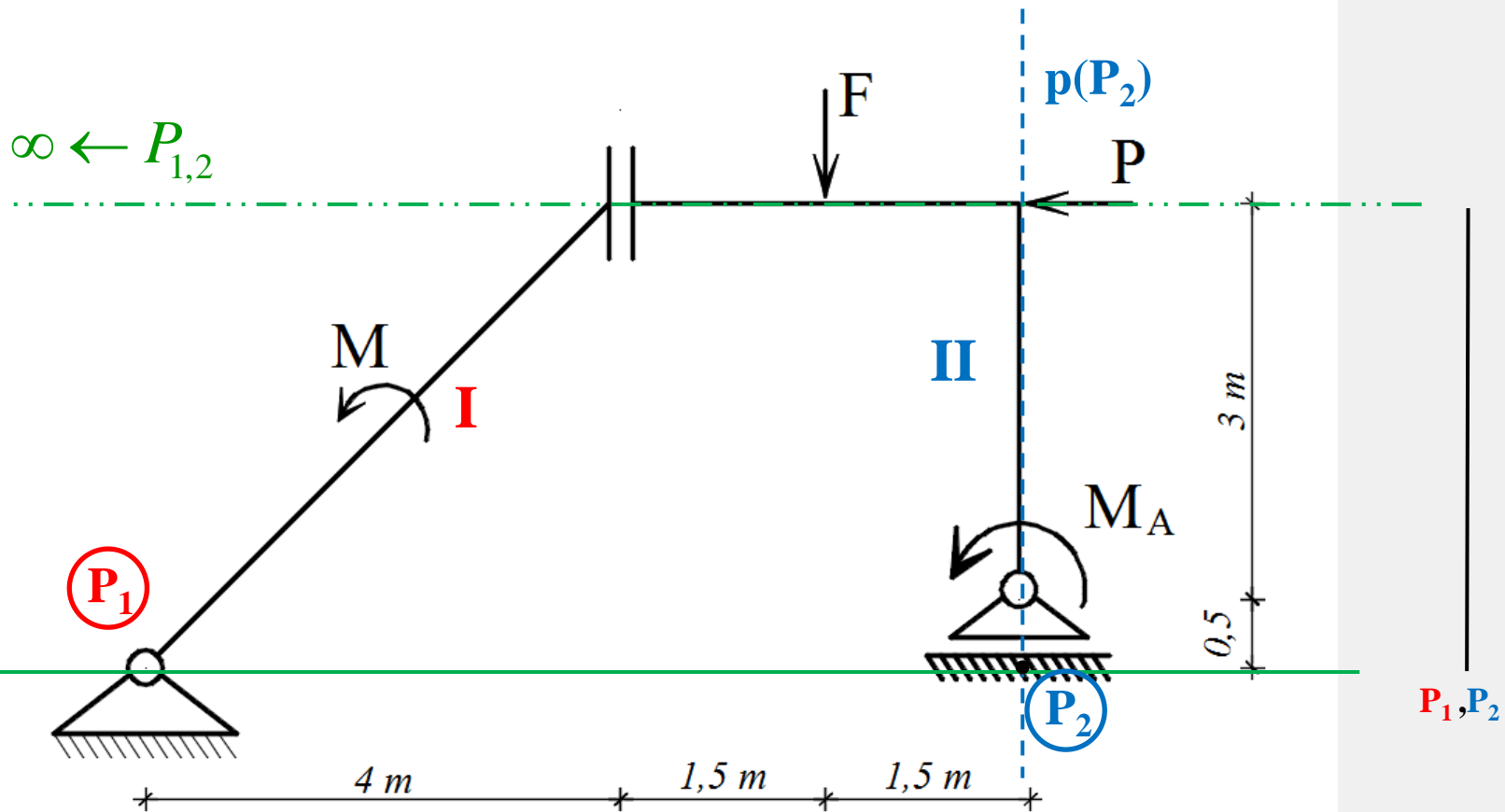


$P_1, P_2$

$P_1$   $P_2$

**Uvjet spoja**

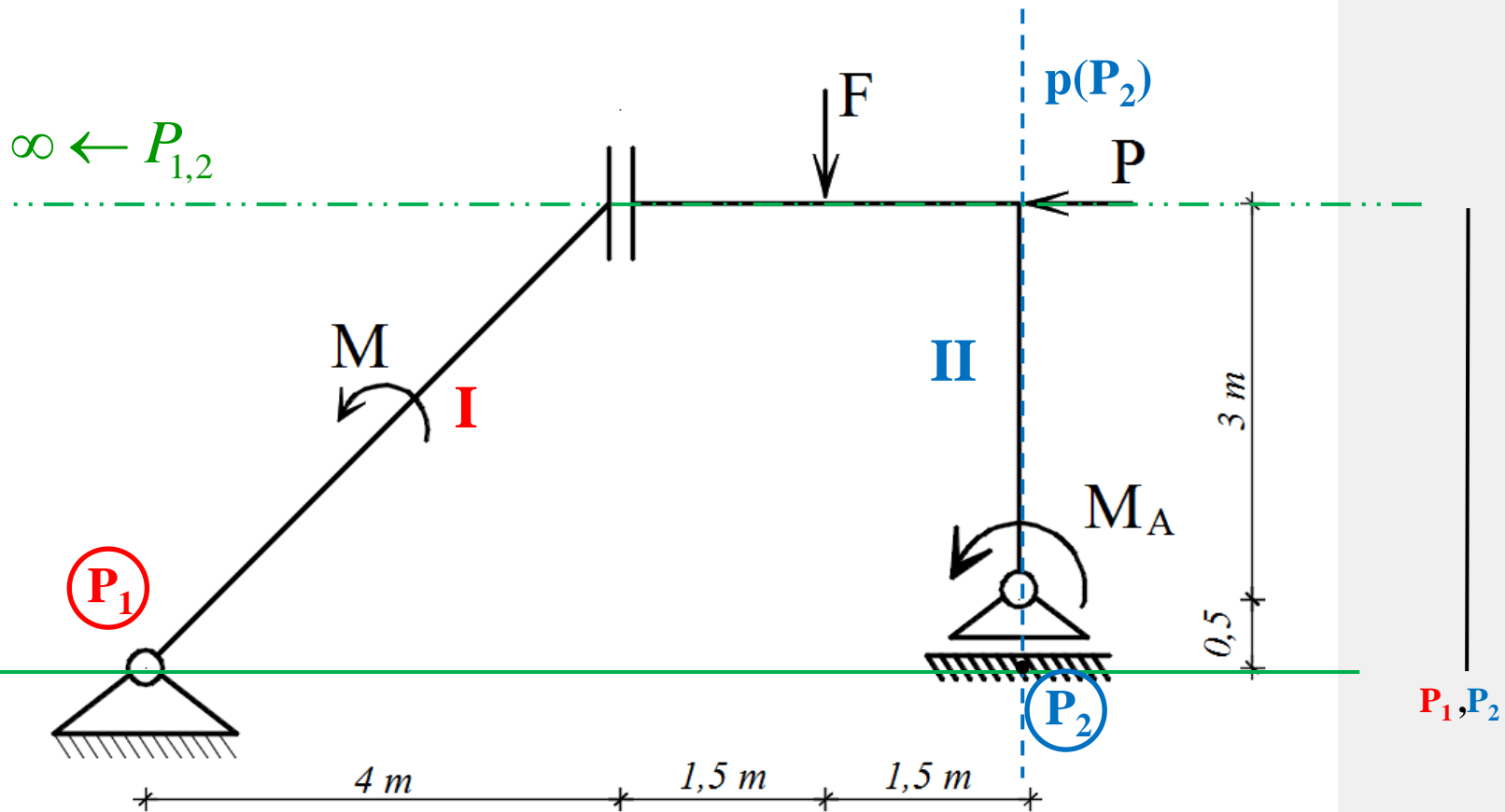
$$\delta\varphi_I = \delta\varphi_{II}$$



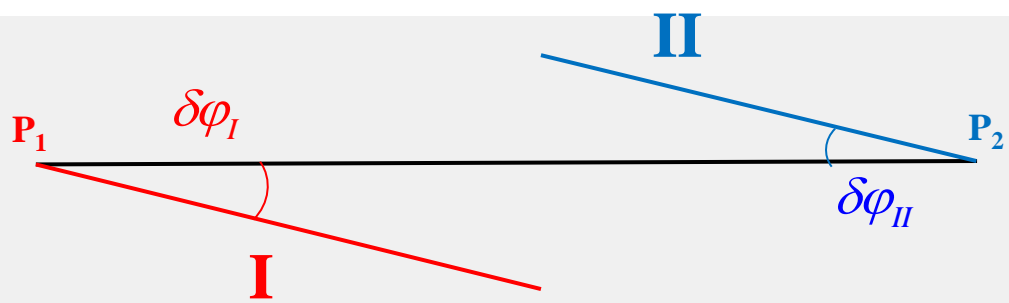
**Uvjet spoja**

$$\delta\varphi_I = \delta\varphi_{II}$$



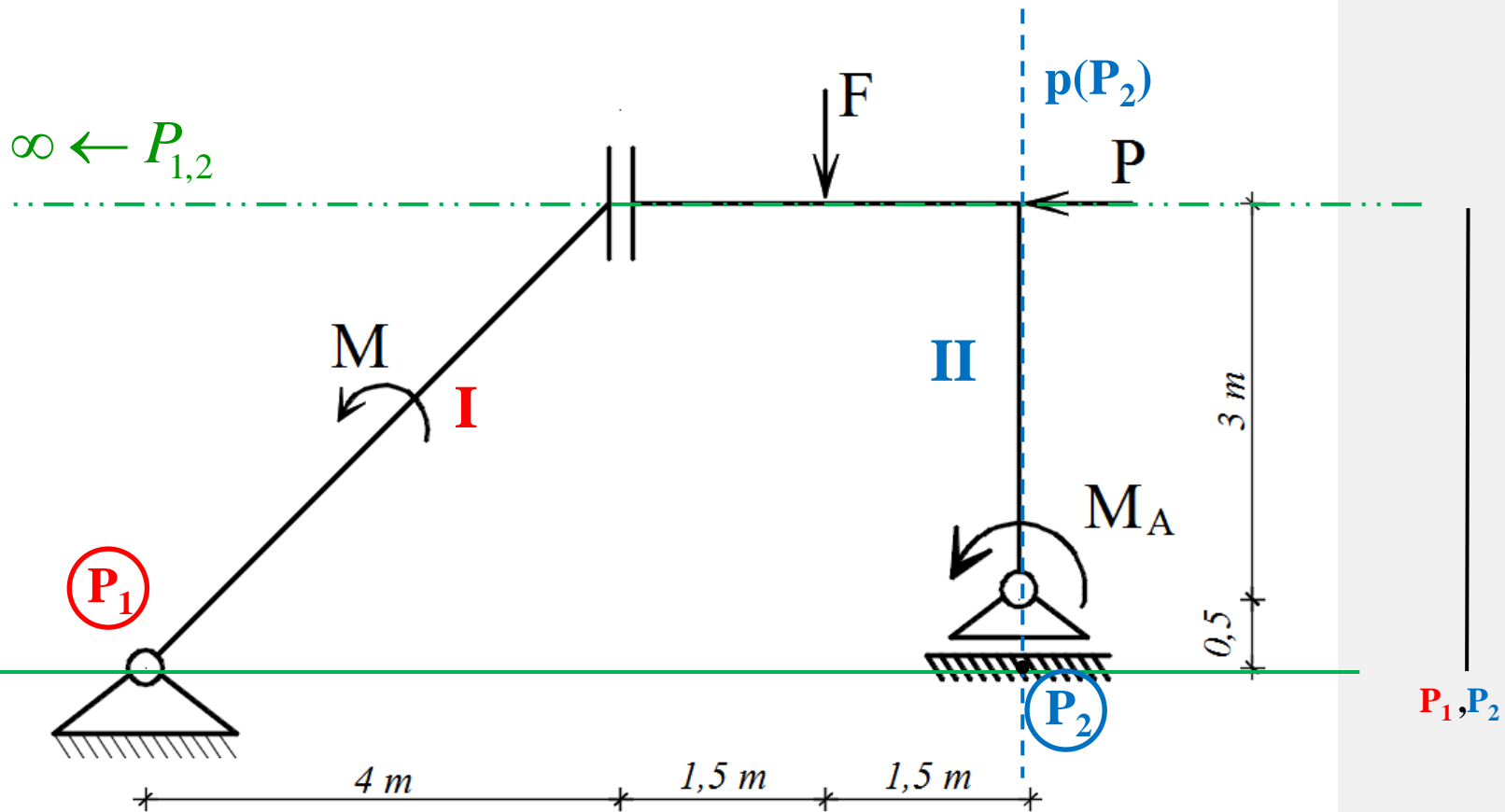


$P_1, P_2$

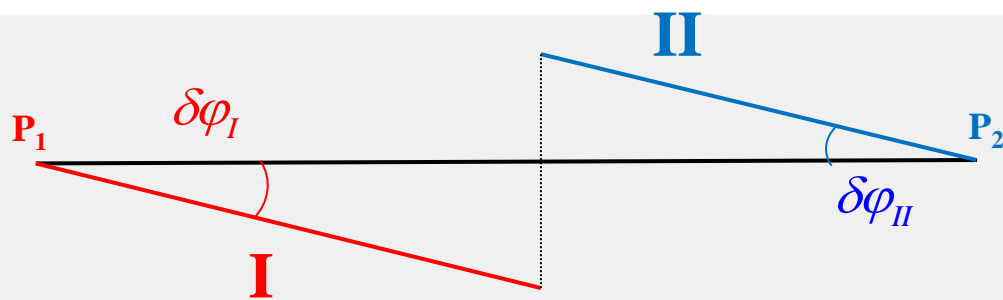


**Uvjet spoja**

$$\delta\varphi_I = \delta\varphi_{II}$$

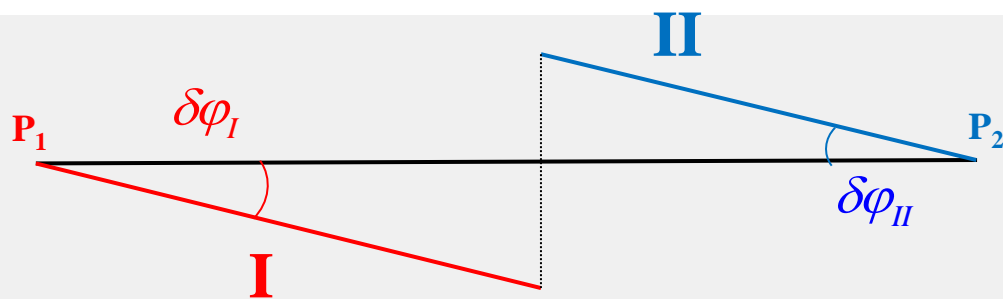
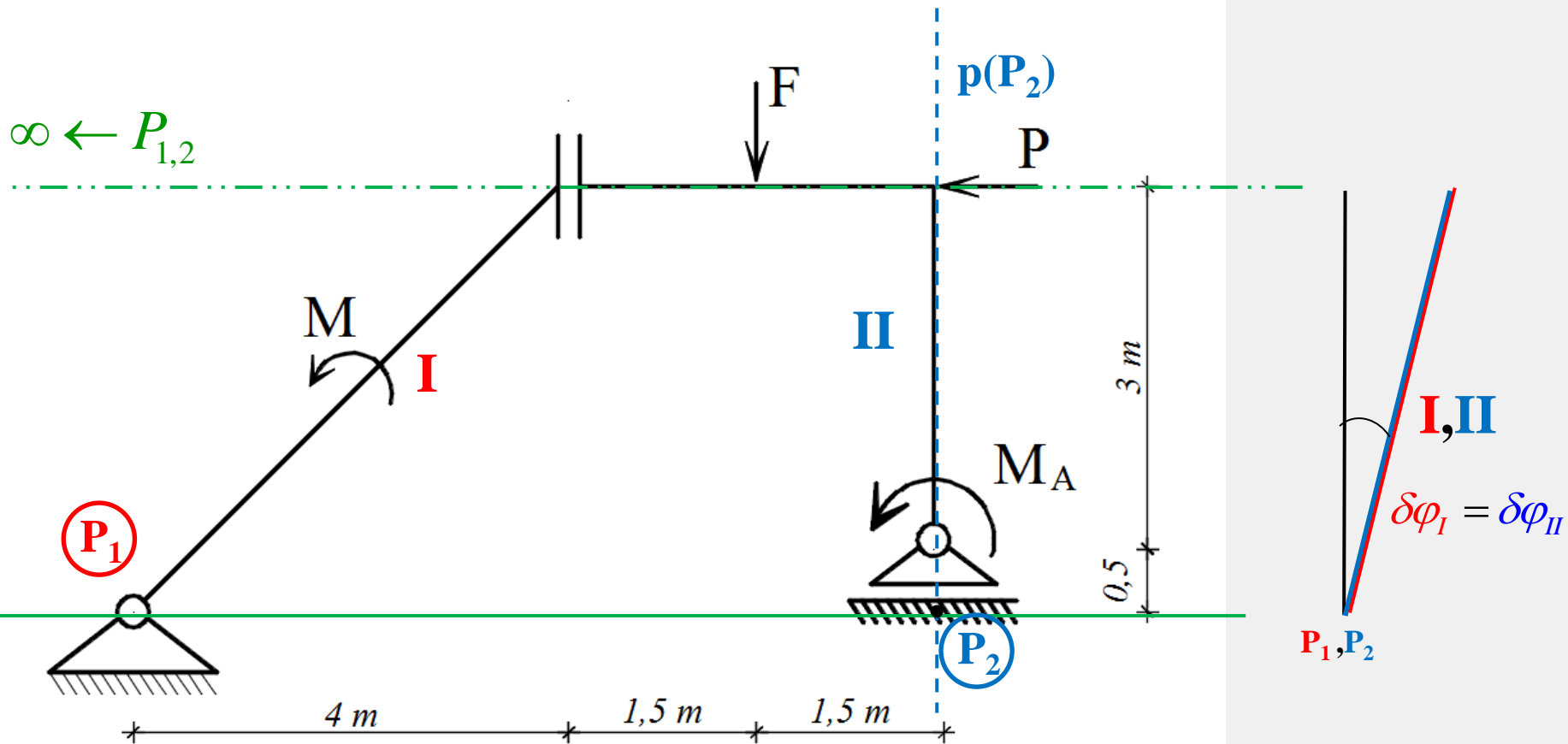


$P_1, P_2$



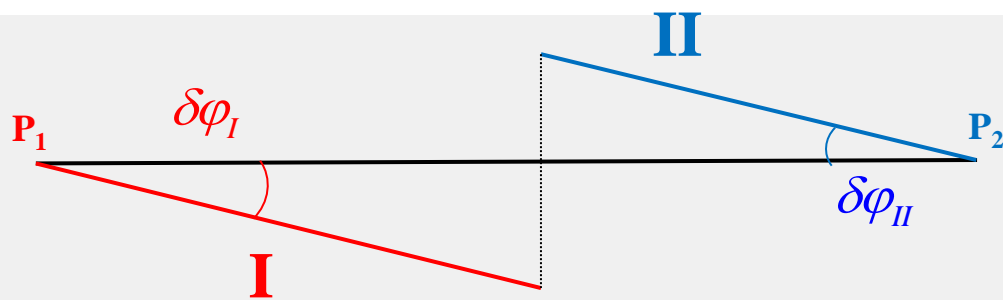
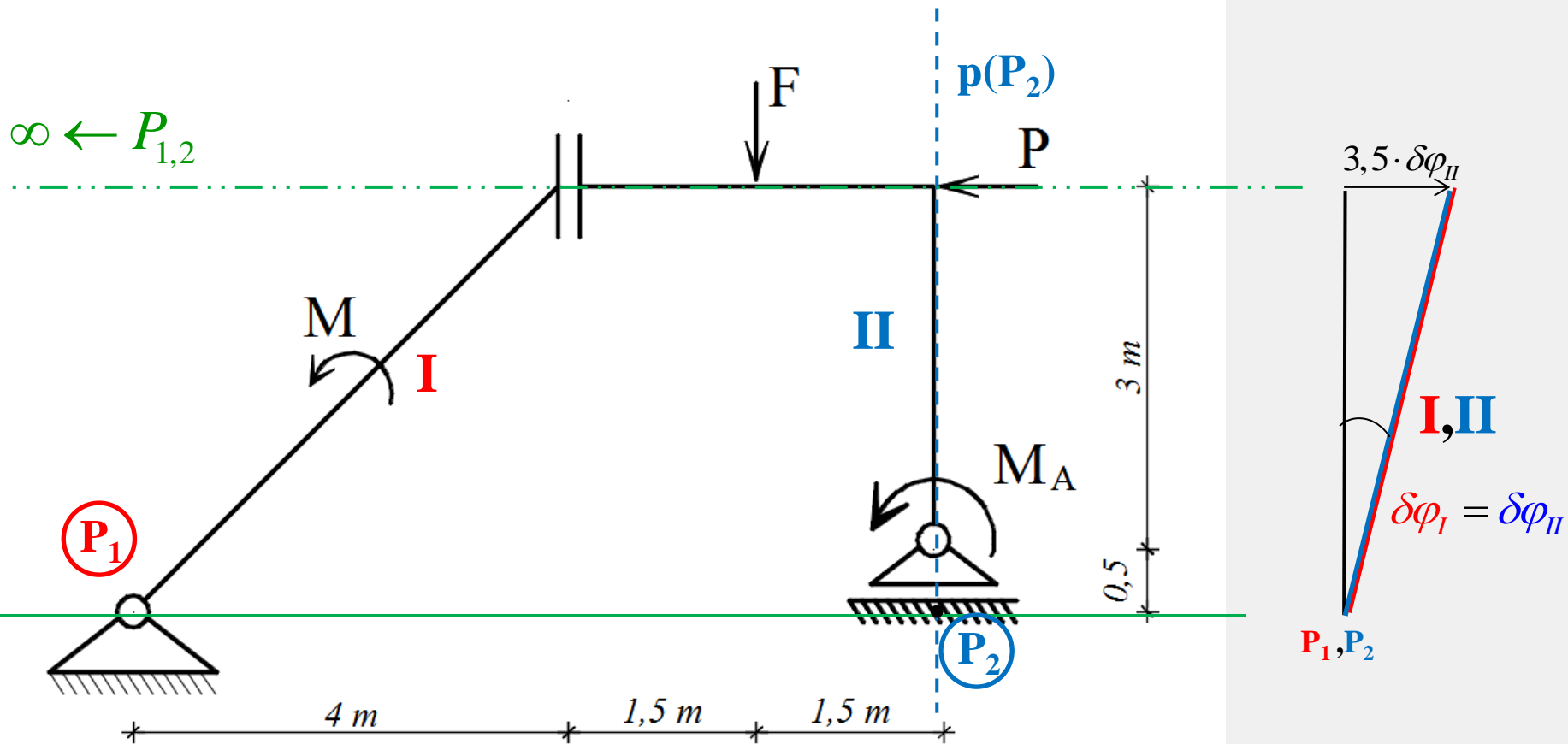
**Uvjet spoja**

$$\delta\varphi_I = \delta\varphi_{II}$$



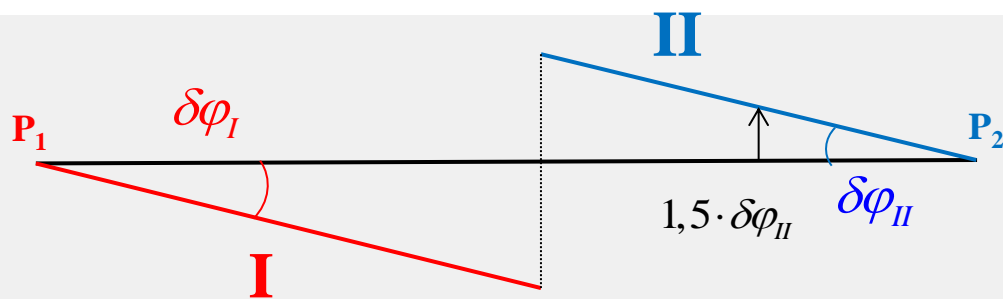
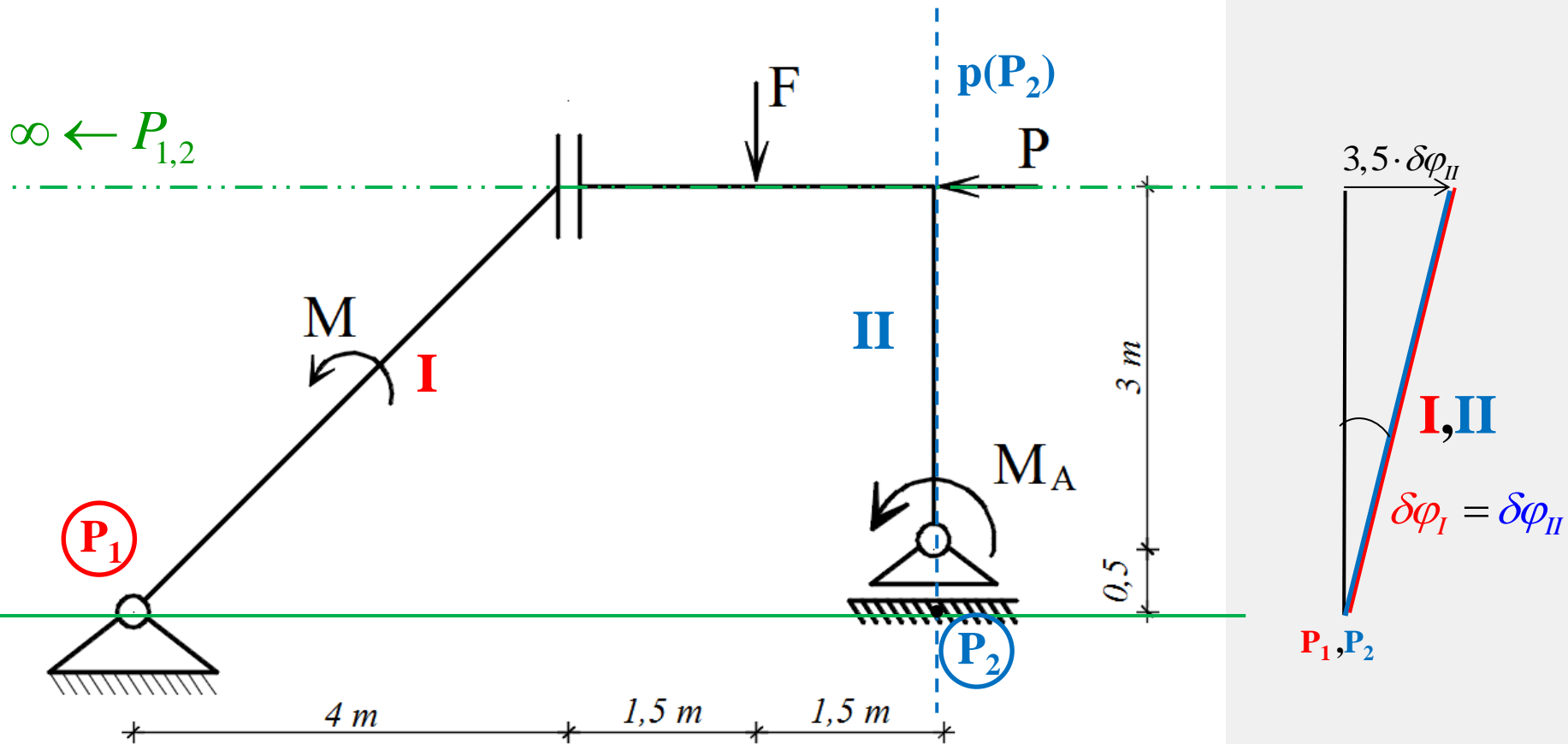
**Uvjet spoja**

$$\delta\varphi_I = \delta\varphi_{II}$$



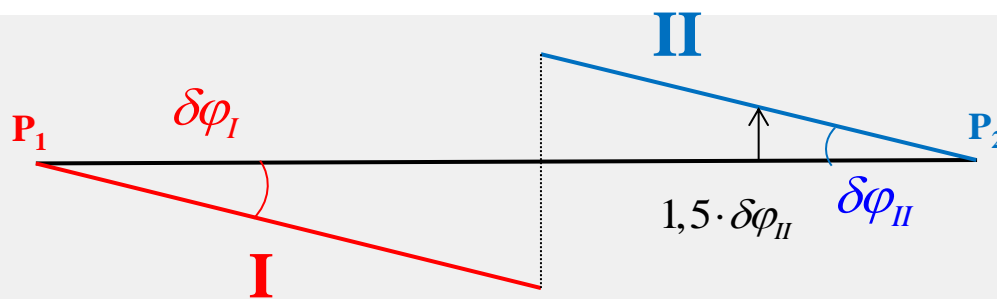
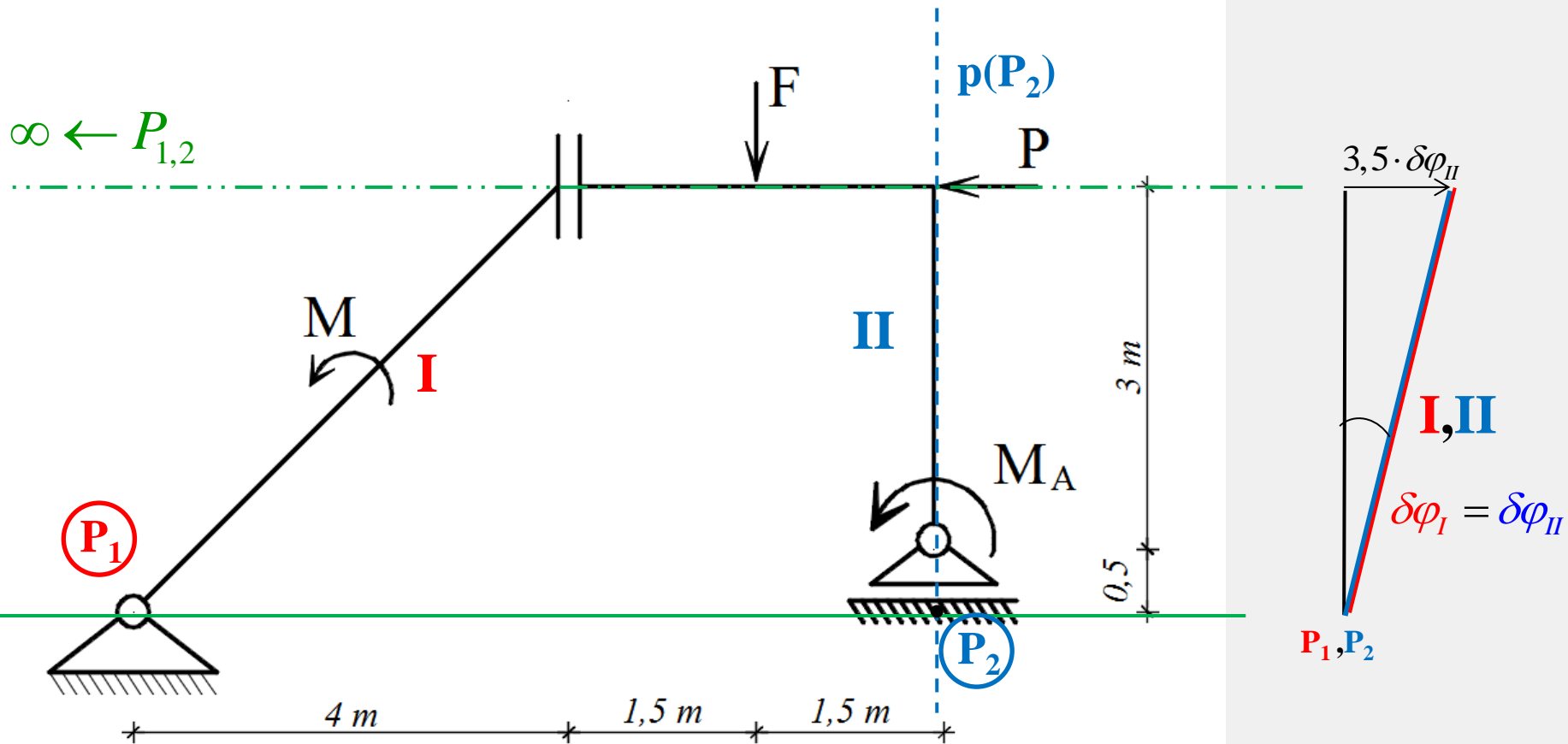
**Uvjet spoja**

$$\delta\varphi_I = \delta\varphi_{II}$$



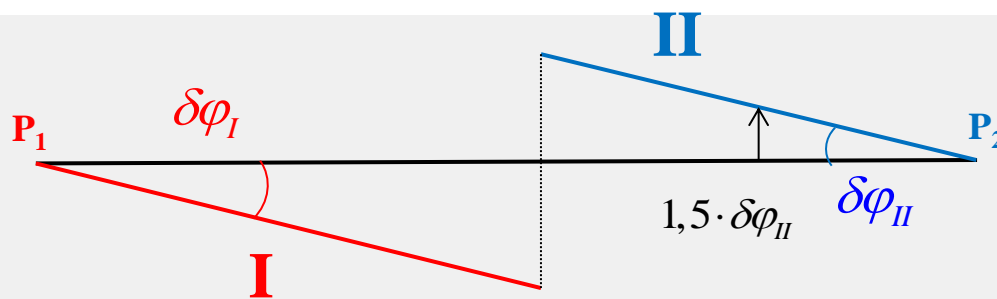
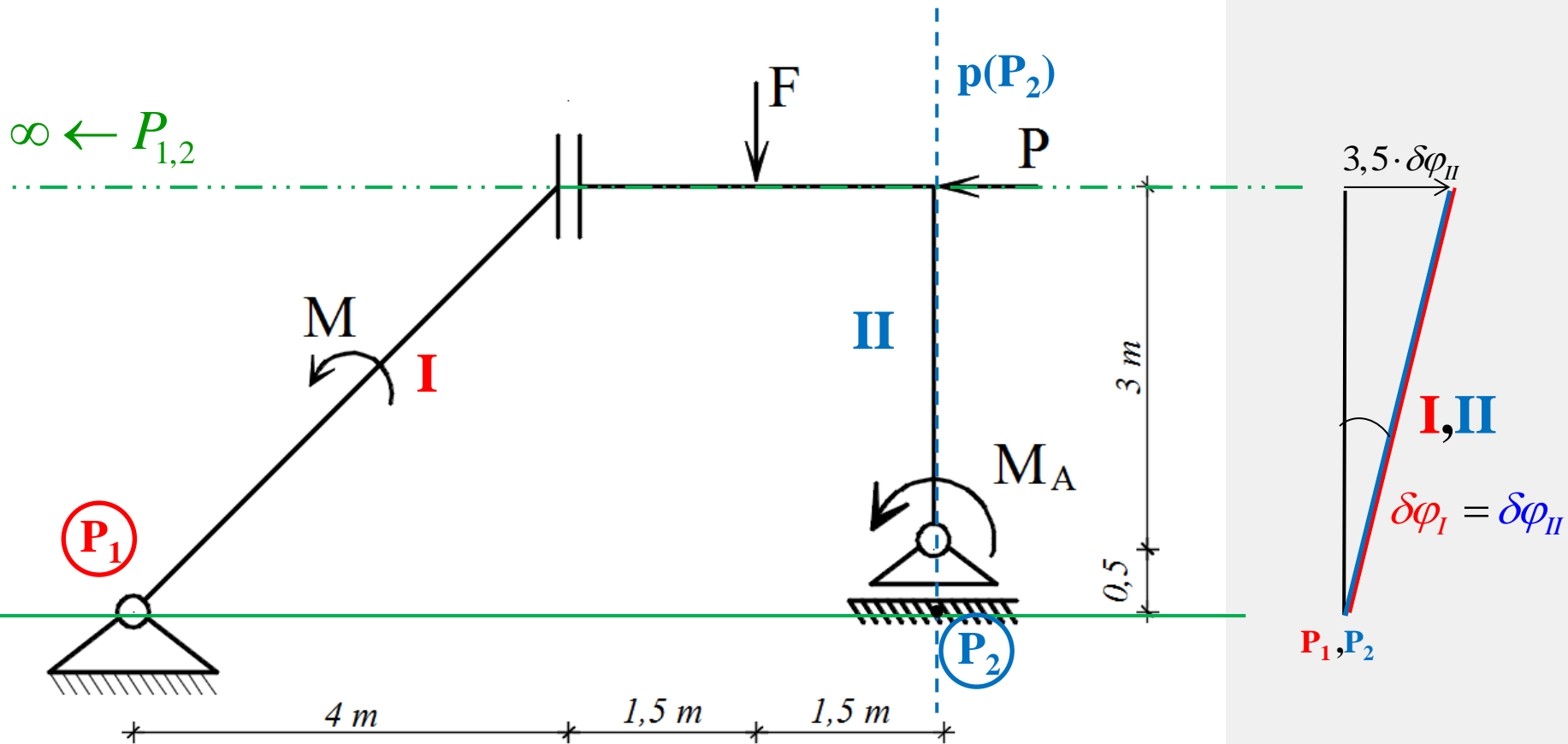
**Uvjet spoja**

$$\delta\varphi_I = \delta\varphi_{II}$$



**Virtualni rad**

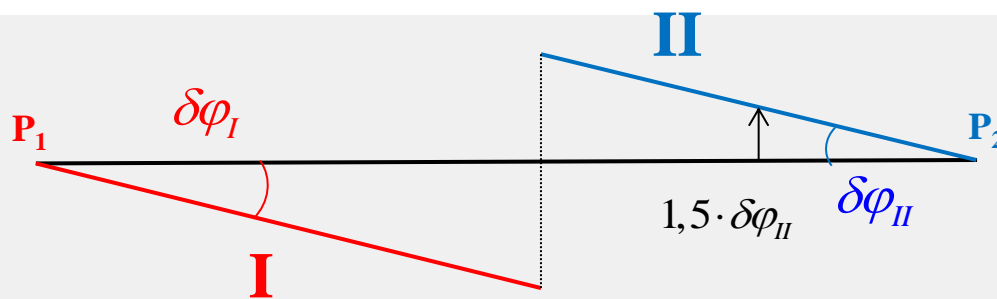
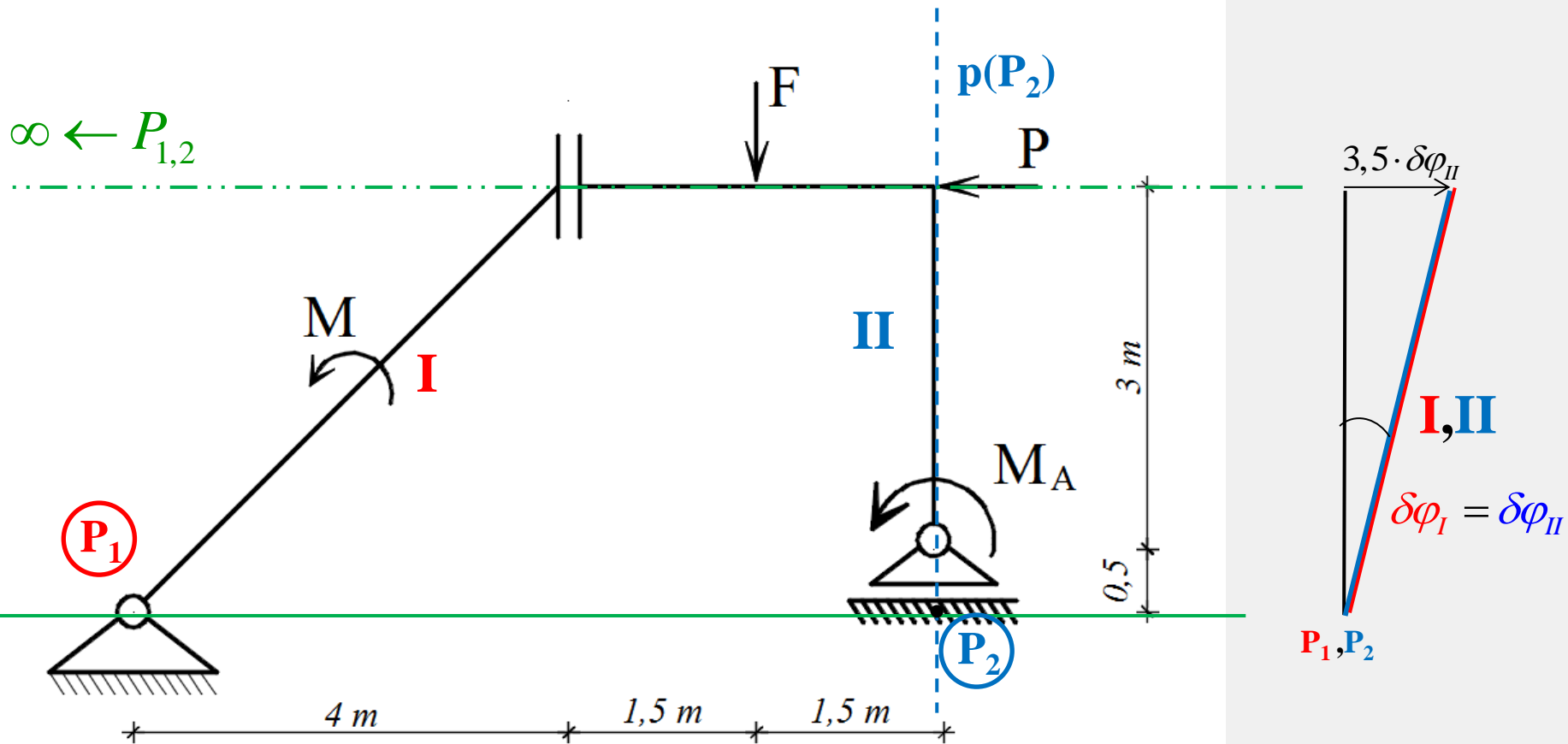
$$\sum \delta W = 0$$



**Virtualni rad**

$$\sum \delta W = 0$$

$$-M \cdot \delta\varphi_I - F \cdot 1,5 \cdot \delta\varphi_{II} - P \cdot 3,5 \cdot \delta\varphi_{II} - M_A \cdot \delta\varphi_{II} = 0$$



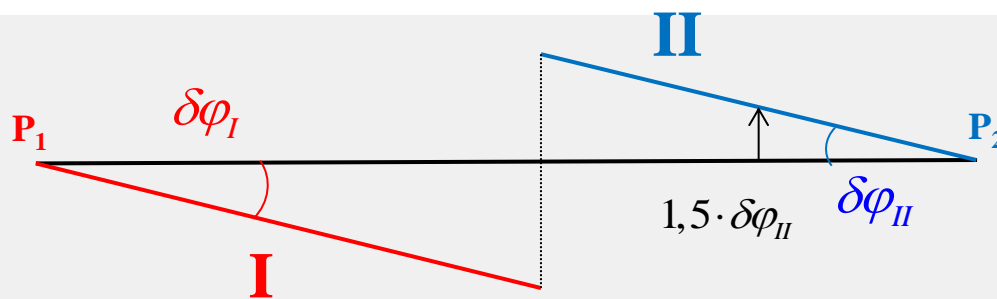
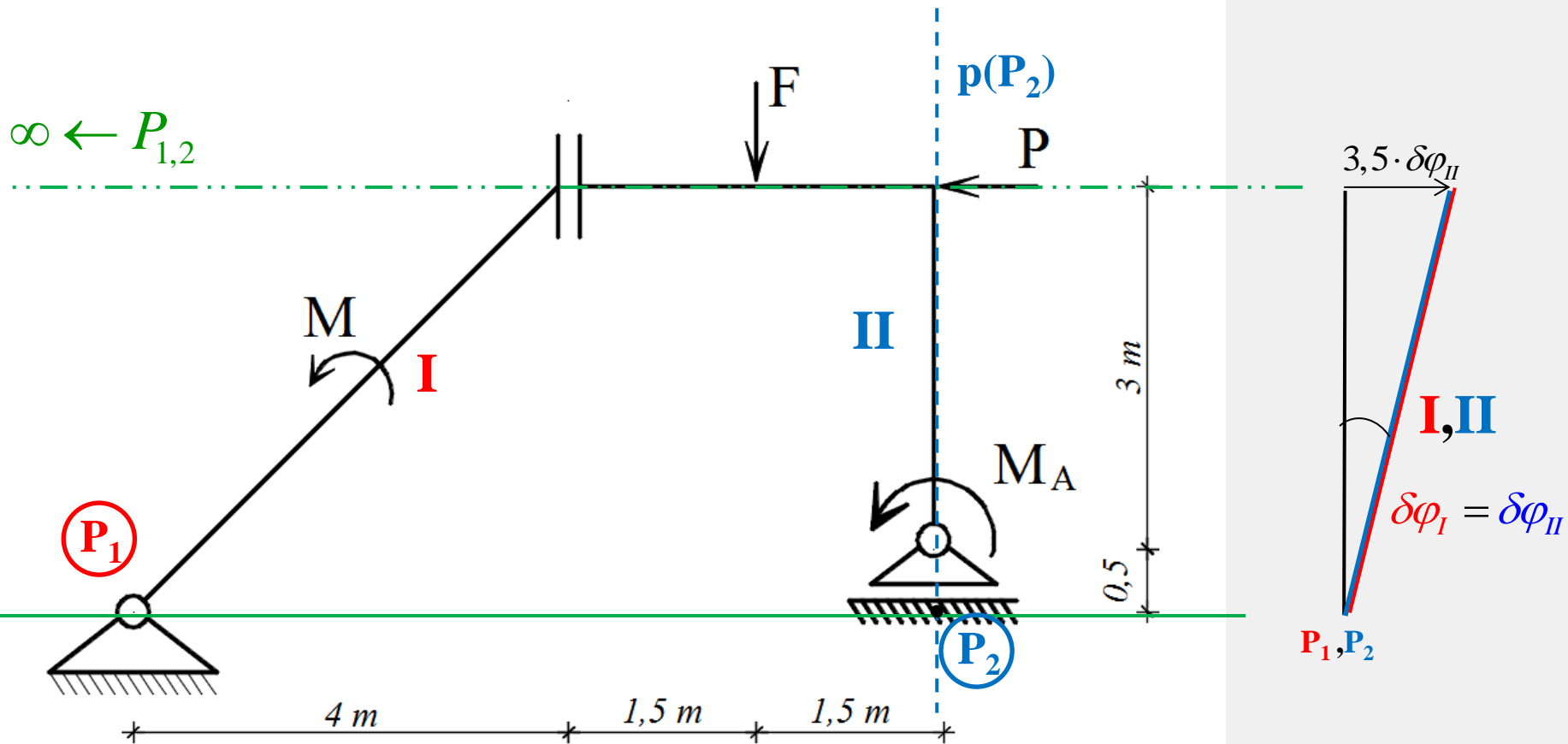
**Virtualni rad**

$$\sum \delta W = 0$$

$$-M \cdot \cancel{\delta\varphi_I} - F \cdot 1,5 \cdot \cancel{\delta\varphi_{II}} - P \cdot 3,5 \cdot \cancel{\delta\varphi_{II}} - M_A \cdot \cancel{\delta\varphi_{II}} = 0$$

$$\delta\varphi_I = \delta\varphi_{II}$$





**Virtualni rad**

$$\sum \delta W = 0$$

$$-M \cdot \cancel{\delta\varphi_I} - F \cdot 1,5 \cdot \cancel{\delta\varphi_{II}} - P \cdot 3,5 \cdot \cancel{\delta\varphi_{II}} - M_A \cdot \cancel{\delta\varphi_{II}} = 0$$

$$\delta\varphi_I = \delta\varphi_{II}$$

$$M_A = -35 \text{ kNm}$$