Дано: ABCD-трапеция, AC=9, BD=12, BC=4, AD=11.

Найти: $S\_{ABCD}$

$$Решение: ABCD-трапеция⇒∆AOD\~∆BOC⇒\frac{BO}{DO}=\frac{CO}{AO}=\frac{BC}{AD}=\frac{4}{11}$$

$$CO=4x; AO=11x; BO=4y;DO=11y$$

$$\left\{\begin{array}{c}AO+CO=AC\\DO+BO=BD\end{array}\right.⇒\left\{\begin{array}{c}11x+4x=9\\11y+4y=12\end{array}\right.⇒\left\{\begin{array}{c}x=\frac{3}{5}\\y=\frac{4}{5}\end{array}\right.⇒\left\{\begin{array}{c}AO=\frac{3}{5}AD\\DO=\frac{4}{5}AD\end{array}\right.$$

$$AO^{2}+DO^{2}=\left(\frac{3}{5}AD\right)^{2}+\left(\frac{4}{5}AD\right)^{2}=AD^{2}⇒∠AOD=90°$$

$$S\_{ABCD}=0,5AC∙BD=0,5∙9∙12=54 $$