HINTS:

1) Absolute rigid body can generate:

a) 3 equations on a plane (x, y, z, Mz)

b) 6 equations in a space (x, y, z, Mx, My, Mz)

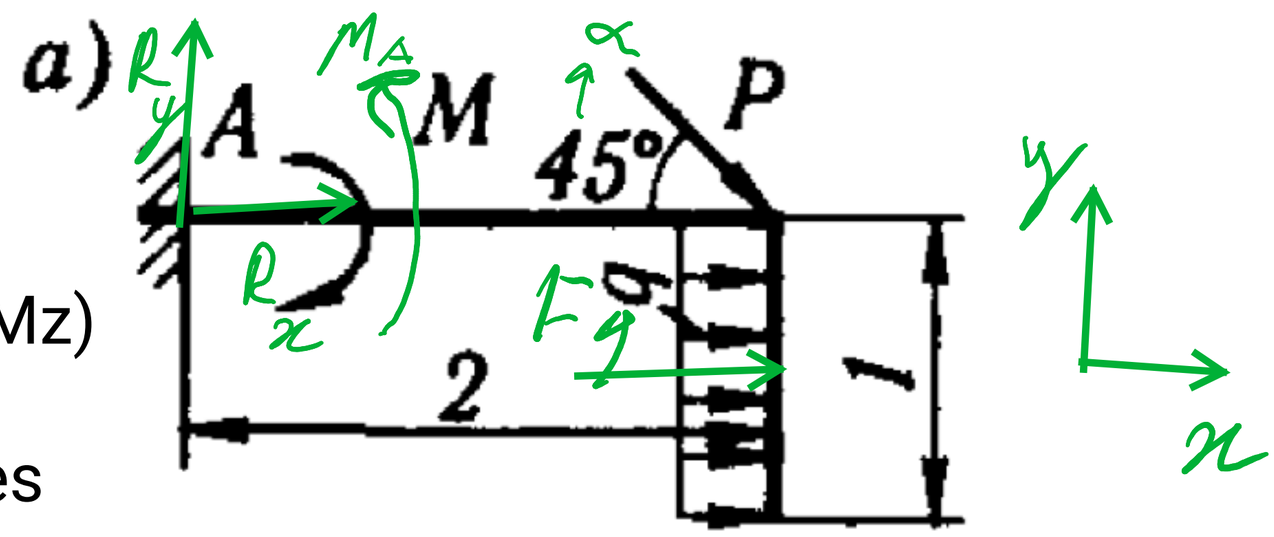
Part of a body! also can do it

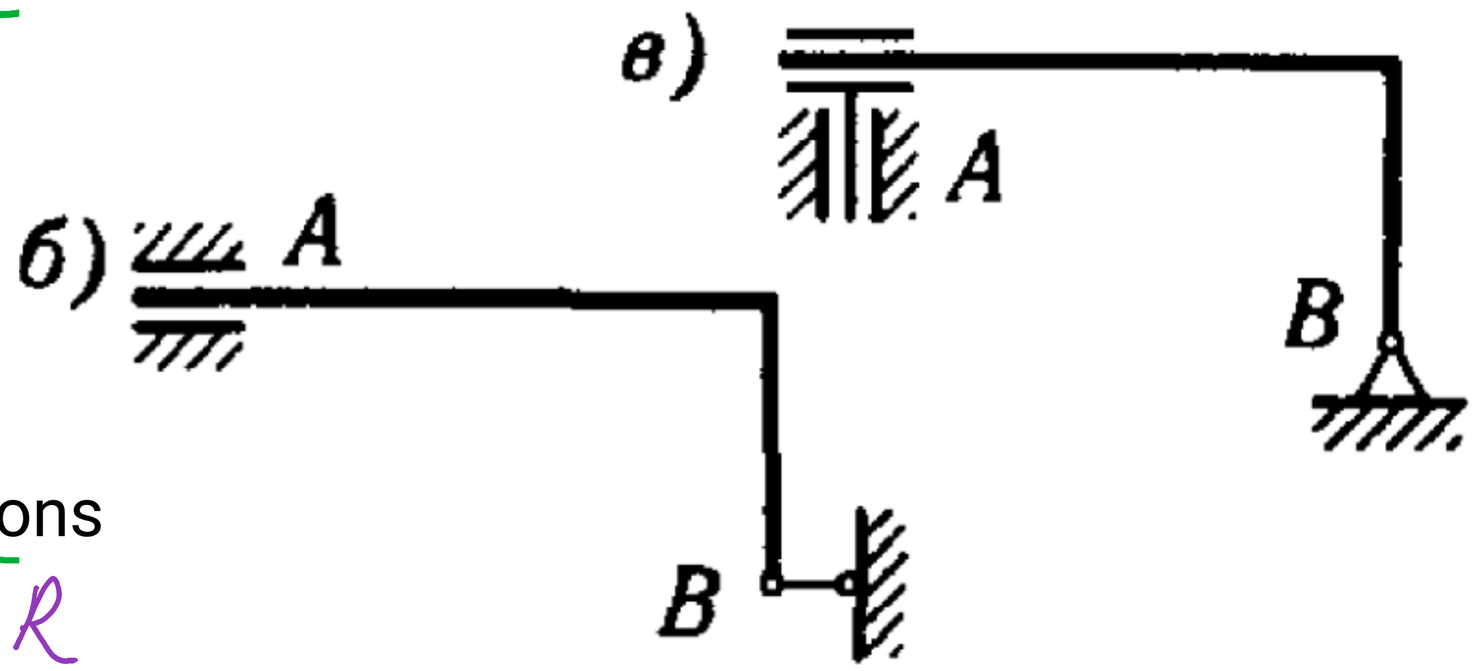
2) Force is an interaction between 2 bodies

3) Because we are working with absolute rigid bodies

a) point of force can be shifted along the force direction

b) torque - in any place of a body

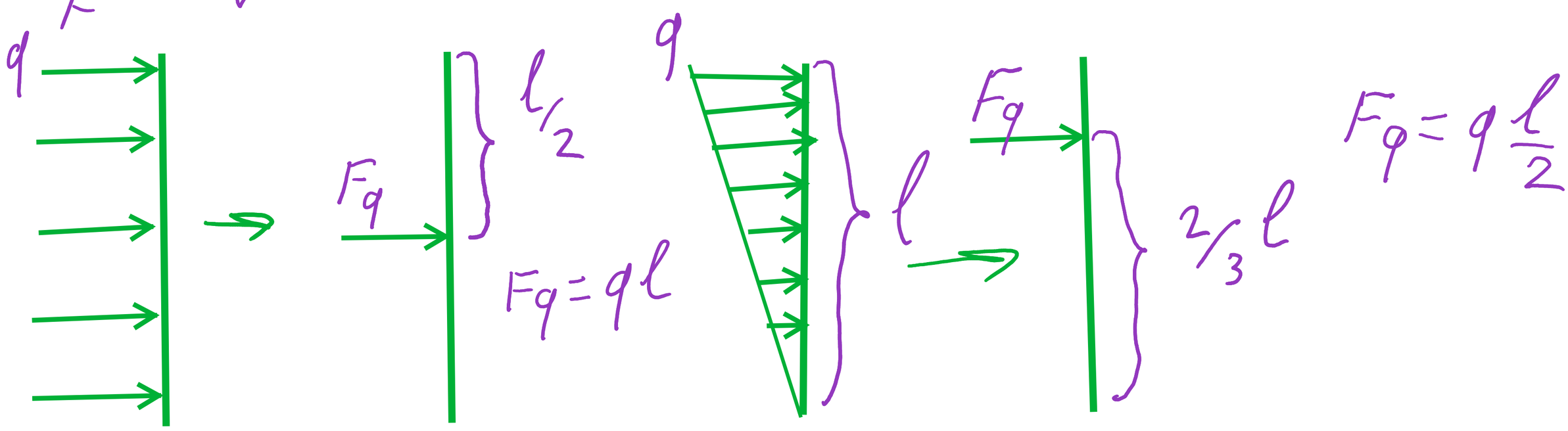




4) In statics we used to find Reactions

$M \sim \frac{1}{\omega}$ $M = F \times R$

$F \sim V$



5) Reaction, Force can be decoupled on a basis (projection)

SOLUTION

Research Object: 1 rigid body (beam)

Body was fixed: a) A - fixed -> Rx, Ry, Ma - ?

b) A - sliding support -> Ry, Ma - ?

B - ideal beam (link) -> Rx - ?

c) A - 2 sliding (along x and y axes) -> Ma - ?

B - pin support (hinge) -> Rx, Ry - ?

Force Analysis:

a) $R_{xA} - ?$ $M_A - ?$ $R_{yA} - ?$

$P \rightarrow P_x = +P\cos\alpha$

$P \rightarrow P_y = -P\sin\alpha$

$q \Rightarrow F_q = ql$

Solution:

a) $x: P_x + F_q + R_x = 0 \Rightarrow R_x$ $M^A: -M - 2P_y + 0{,}5F_q + M_A = 0$

$y: P_y + R_y = 0 \Rightarrow R_y$