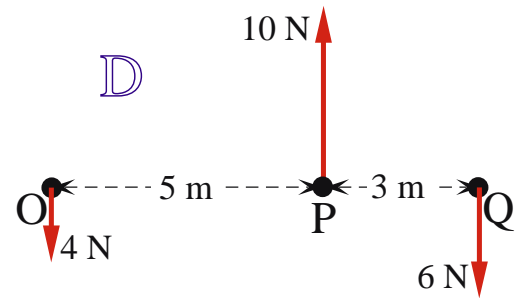
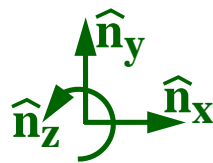
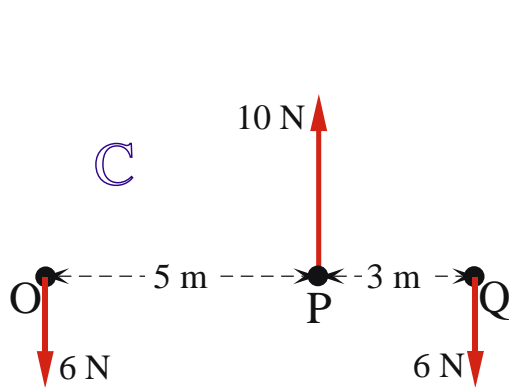
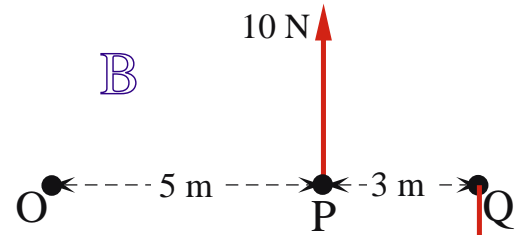
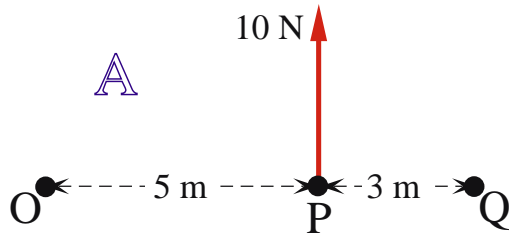


### 13.2 Moment vs. torque (refer to Section 17.5.1)

Consider the various sets  $S$  of forces, their resultants  $\vec{F}^S$ , and moments about points  $O$ ,  $P$ , and  $Q$ . This example shows how to easily determine whether a moment is a torque.<sup>1</sup>

$S$	$\vec{F}^S$	$\vec{M}^{S/O}$	$\vec{M}^{S/P}$	$\vec{M}^{S/Q}$	$\vec{M}^{S/O} \stackrel{?}{=} \vec{M}^{S/P} \stackrel{?}{=} \vec{M}^{S/Q}$	Moment is torque?
A	$10 \hat{n}_y$	$50 \hat{n}_z$	$\vec{0}$		Yes/No	Yes/No
B					Yes/No	Yes/No
C					Yes/No	Yes/No
D					Yes/No	Yes/No



<sup>1</sup>Since  $\vec{T}^S \triangleq \vec{M}^{S/O}$  if  $\vec{F}^S = \vec{0}$  (point  $O$  is *any* point), the *moment* is a *torque* if  $\vec{F}^S = \vec{0}$  (it is that simple).