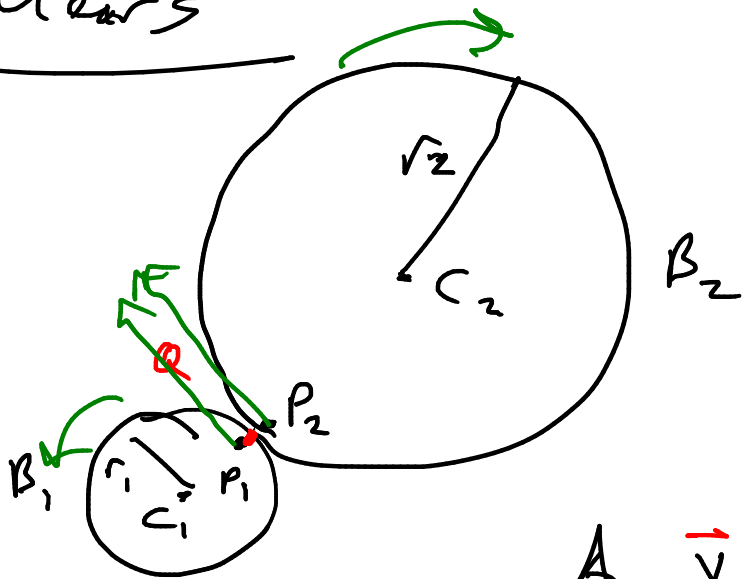


— exam signups on live — M2.1
M2.2

— practice exam M2 active on PL

— discussions next week; exam revision.

Gears



P_1
 P_2 } attached to each gear

Q = always the location
in space of contact.

A. $\vec{v}_Q = \vec{v}_{P_1} = \vec{v}_{P_2}$

D. $\vec{v}_{P_1} = \vec{v}_{P_2} \neq \vec{v}_Q$

B. $v_Q = v_{P_1} \neq v_{P_2}$

E. all diff.

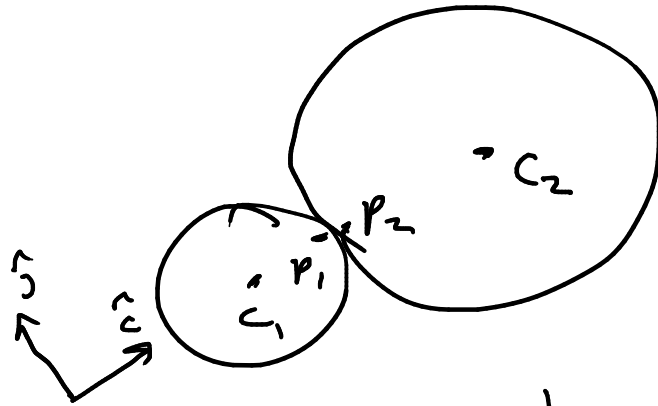
C. $v_Q = v_{P_2} \neq v_{P_1}$

A. - Yes

B. No

contact no-slip $\Rightarrow \vec{v}_{p_1} = \vec{v}_{p_2}$
 (persistent)

$\uparrow \nearrow$
 contact points



use CCW-positive signs

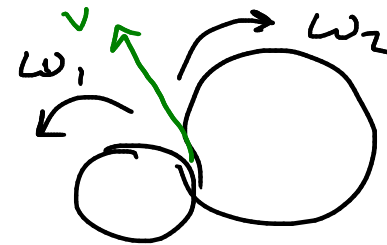
Sign convention $\rightarrow \vec{\omega}_1 = \omega_1 \hat{k} \quad \vec{\omega}_2 = \omega_2 \hat{k}$

= +ve CCW $\vec{v}_{p_1} = \vec{v}_{p_2}$

~~$$\vec{v}_{c_1} + \vec{\omega}_1 \times \vec{r}_{c_1, p_1} = \vec{v}_{c_2} + \vec{\omega}_2 \times \vec{r}_{c_2, p_2}$$~~

$$r_1 \omega_1 \hat{z} = -r_2 \omega_2 \hat{z}$$

compatible signs



$\omega_1 = -6$
 $\omega_2 < 0$
 $\vec{\omega}_2 = +\hat{k}$

$$v = r_1 \omega_1 = r_2 \omega_2$$

$$\vec{\omega}_1 = \omega_1 \hat{k}$$

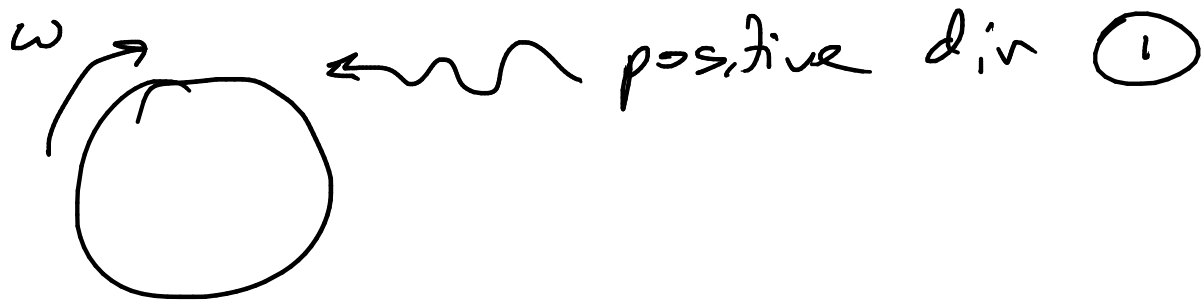
$$\vec{\omega}_2 = -\omega_2 \hat{k}$$

in fact $\omega_1 = -6 \text{ rad/s}$
 $\vec{\omega}_2 = \text{A. } 6 \text{ rad/s}$
 $\text{B. } 12$

① which direction is positive

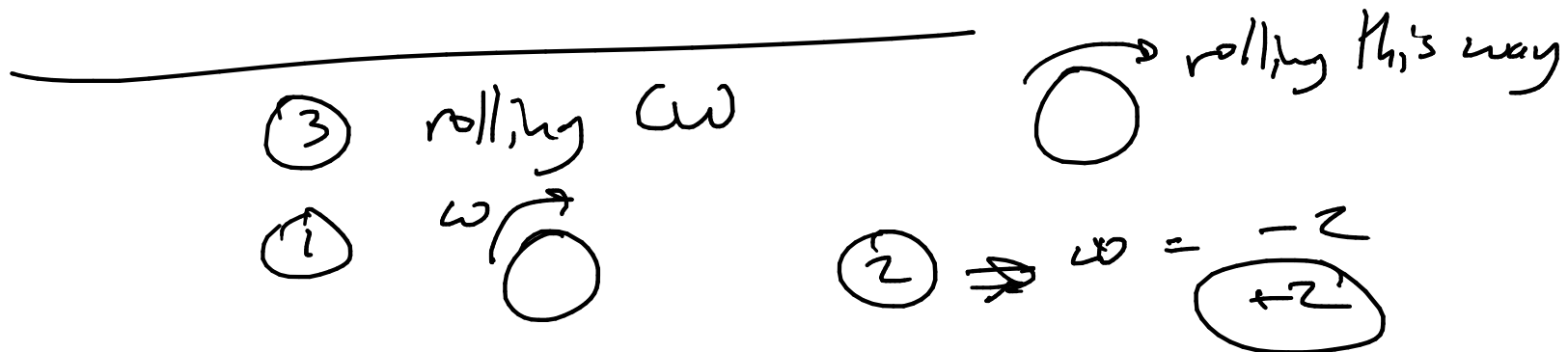
② is the number positive

③ which direction is the physical motion.

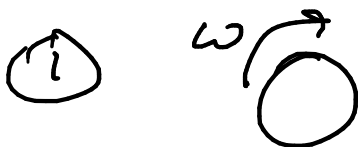


② $\omega = -3 \text{ rad/s}$.

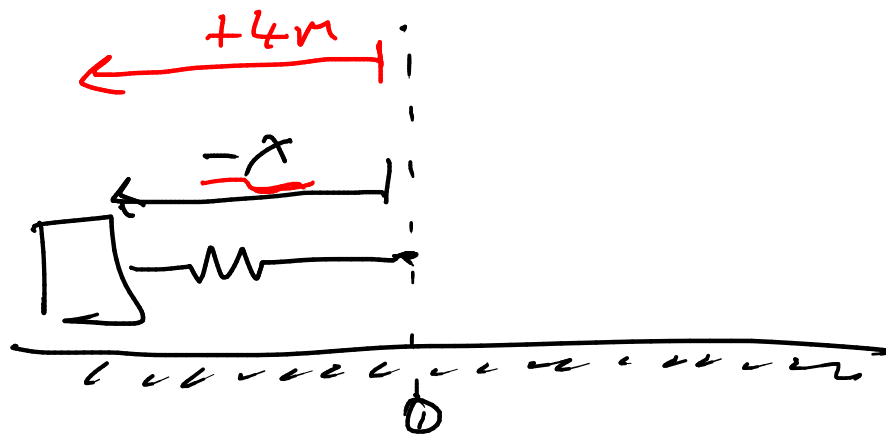
③ rolling CCW.



③ rolling CW



② $\Rightarrow \omega = -2$
 $+2$



$$x = -4$$

A
 block right or left
 of 0?

