- Work

$E = \vec{F} \cdot \vec{d}$ (scalar; vectors)

$E = \int_{path} \vec{F} \cdot d\vec{s}$

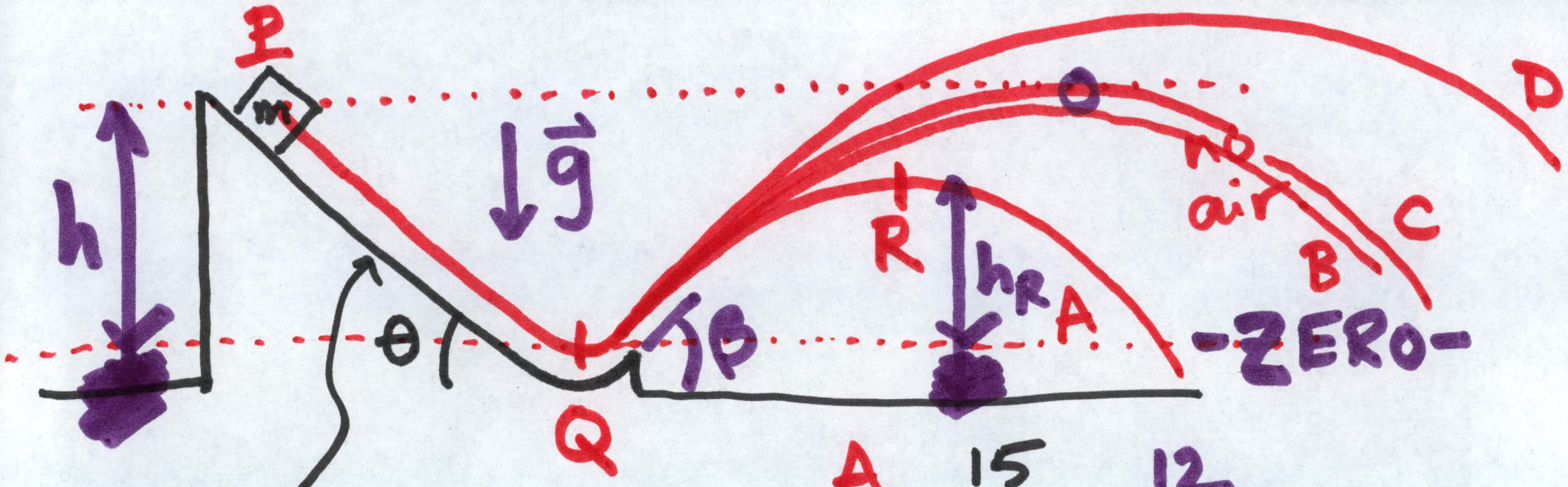
never going to do anything complicated

transfer of energy

work has a sign

- potential energy "by virtue of position"
- kinetic energy $- \frac{1}{2}mv^2$

"by virtue of velocity"



A	15	12
B	6	10
C	250	90
D	1	0

	Potential	Kinetic
P	mgh	0
Q	0	$\frac{1}{2}mv_Q^2$
R	mgh_R	$\frac{1}{2}mv_R^2 = \frac{1}{2}mv_Q^2\cos^2\beta$

we used physics

total energy @ $E_P = mgh + 0$

@ $E_Q = 0 + \frac{1}{2}mv_Q^2$

Cons. of E: $E_P = E_Q$

$mgh = \frac{1}{2}mv_Q^2 \Rightarrow |\vec{v}_Q| = \sqrt{2gh}$