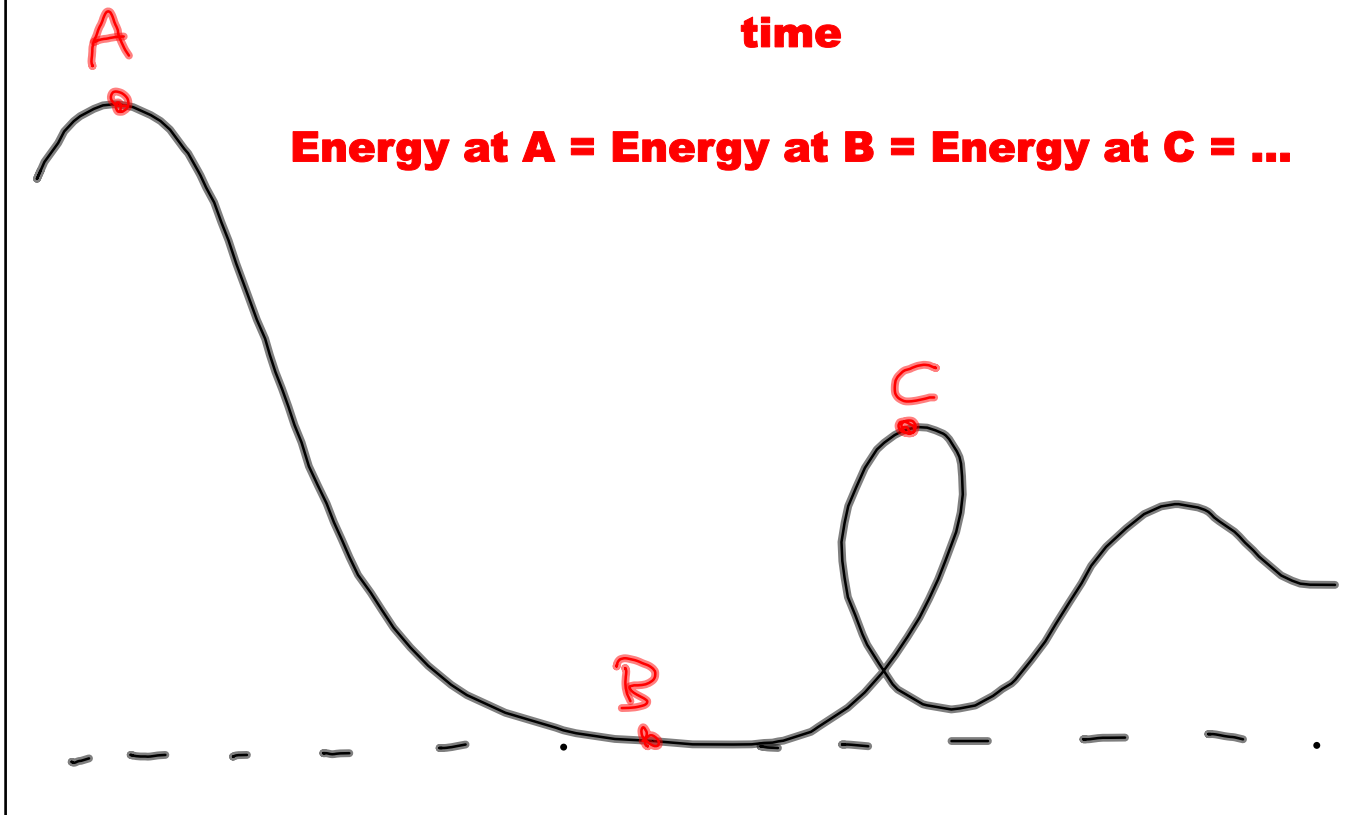


A Rollercoaster is a Gravitational Potential Energy Machine

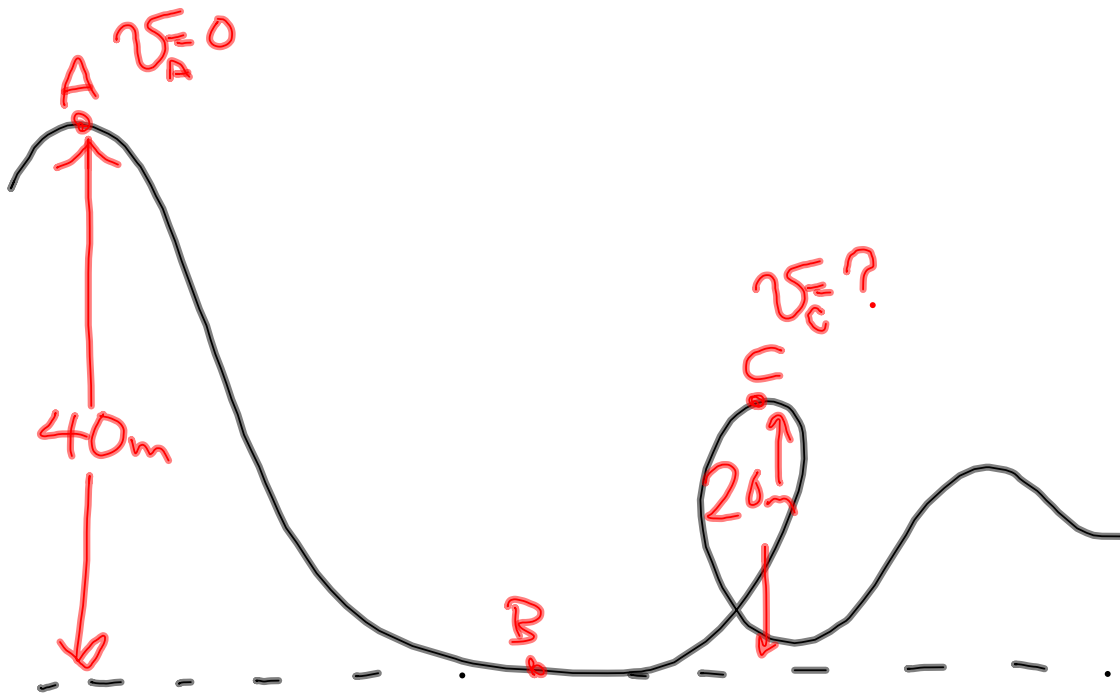
They drag you up the first hill, giving you gravitational PE. No more gets added after that.

So that energy stays the same the entire time

Energy at A = Energy at B = Energy at C = ...



A Rollercoaster is a Gravitational Potential Energy Machine



$$E_A = E_C$$

grav PE at A = grav PE + kinetic E at C

~~$$mgy_A = \frac{1}{2}mv_C^2 + mgy_C$$~~

$$(10 \frac{N}{kg})(40) = \frac{1}{2}v_C^2 + (10 \frac{N}{kg})(20)$$

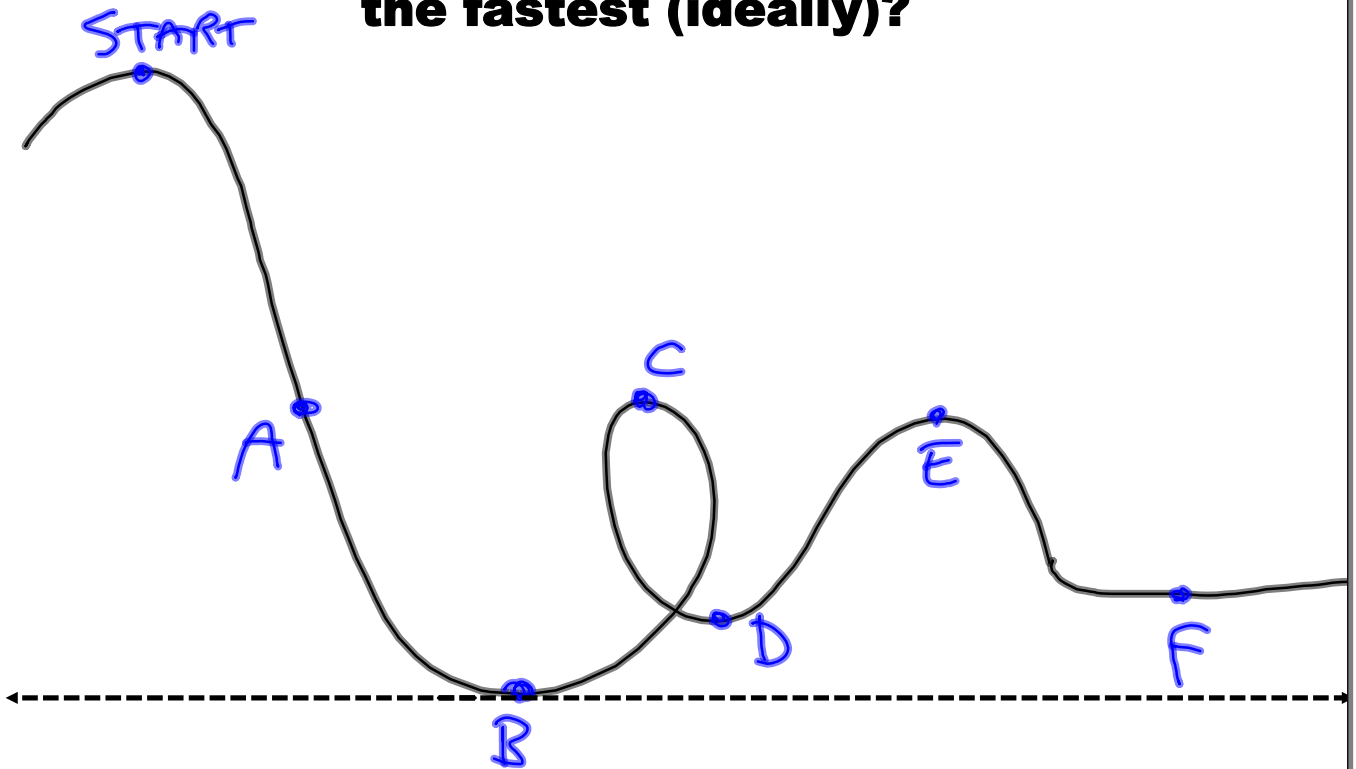
$$400 = \frac{1}{2}v_C^2 + 200$$

$$200 = \frac{1}{2}v_C^2$$

$$400 = v_C^2$$

$$20 \frac{m}{s}$$

Starting with (close to) zero velocity at the top of the first hill, where would the coaster be going the fastest (ideally)?



answer: the lowest spot - B