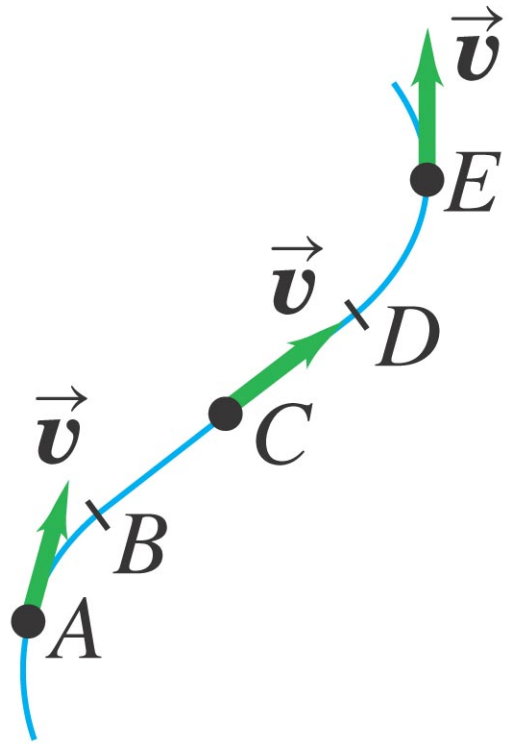
Q3.3

The motion diagram shows an object moving along a curved path at constant speed. At which of the points *A*, *C*, and *E* does the object have *zero* acceleration?



A. point *A* only

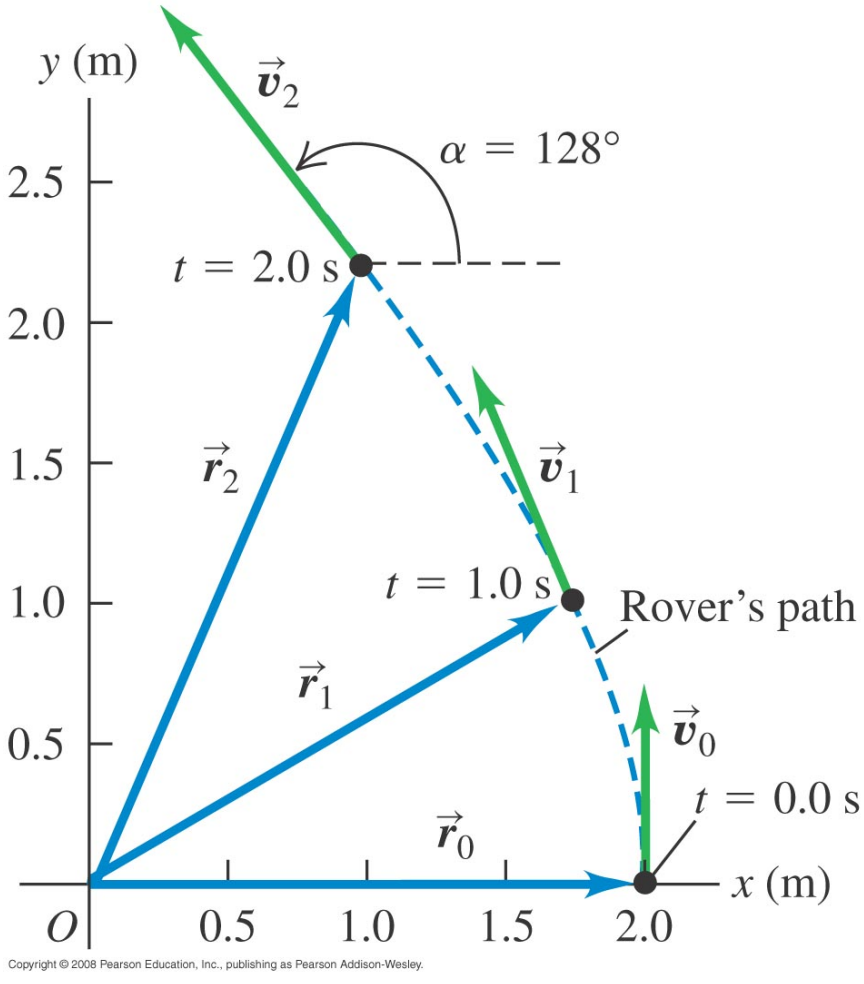
B. point *C* only

C. point *E* only

D. points *A* and *C* only

E. points *A*, *C*, and *E*

Q3.2



This illustration shows the path of a robotic vehicle, or rover. What is the direction of the rover's average acceleration vector for the time interval from $t = 0.0$ s to $t = 2.0$ s?

A. up and to the left

B. up and to the right

C. down and to the left

D. down and to the right

E. none of the above

Q3.5

A pendulum swings back and forth, reaching a maximum angle of 45° from the vertical. Which arrow shows the direction of the pendulum bob's acceleration as it moves from left to right through point *Q* (the low point of the motion)?

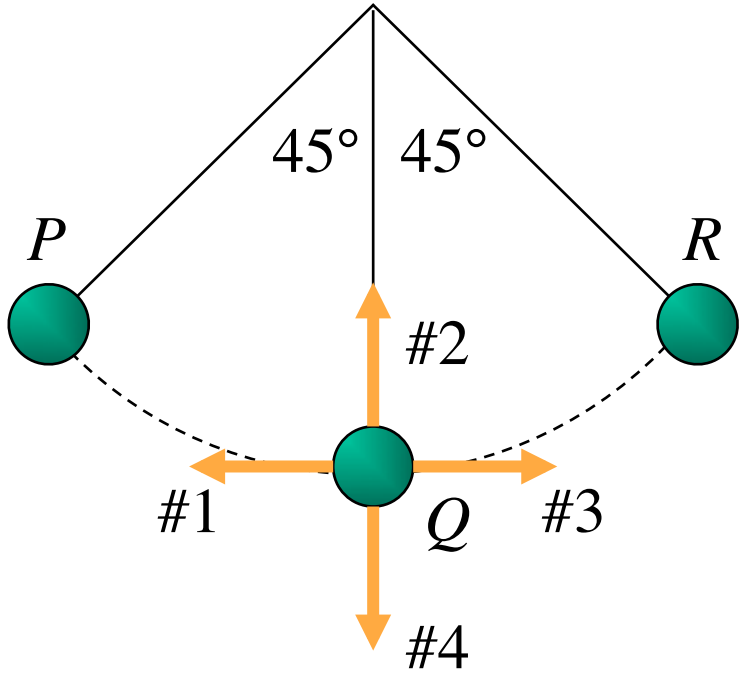
A. #1 (to the left)

B. #2 (straight up)

C. #3 (to the right)

D. #4 (straight down)

E. misleading question — the acceleration is zero at *Q*



Q3.6

A pendulum swings back and forth, reaching a maximum angle of 45° from the vertical. Which arrow shows the direction of the pendulum bob's acceleration at *P* (the far left point of the motion)?

A. #1 (up and to the left)

B. #2 (up and to the right)

C. #3 (down and to the right)

D. #4 (straight down)

E. #5 (down and to the left)