



A ball is thrown directly upward. Assume minimal drag.

These questions apply to the time after the ball leaves the person's hand but before it lands.

- a) During what part of the path is the velocity positive?
- b) During what part of the path is the velocity negative?
- c) During what part of the path is the velocity zero?
- d) During what part of the path is the acceleration positive?
- e) During what part of the path is the acceleration positive?
- f) During what part of the path is the acceleration positive?



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a) During what part of the path is the velocity positive?

On the way up ( $+v = \text{upward}$ ).

b) During what part of the path is the velocity negative?

On the way down ( $-v = \text{downward}$ ).

c) During what part of the path is the velocity zero?

At the top: turnaround.

d) During what part of the path is the acceleration positive?

None.

e) During what part of the path is the acceleration negative?

The entire time - gravity points downward.

f) During what part of the path is the acceleration zero?

None.