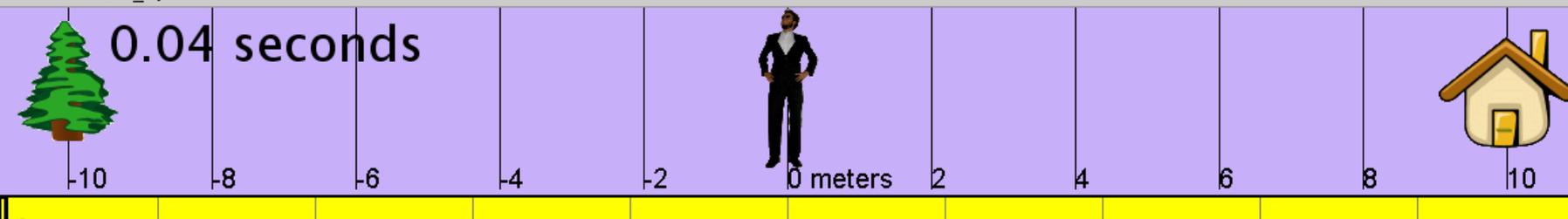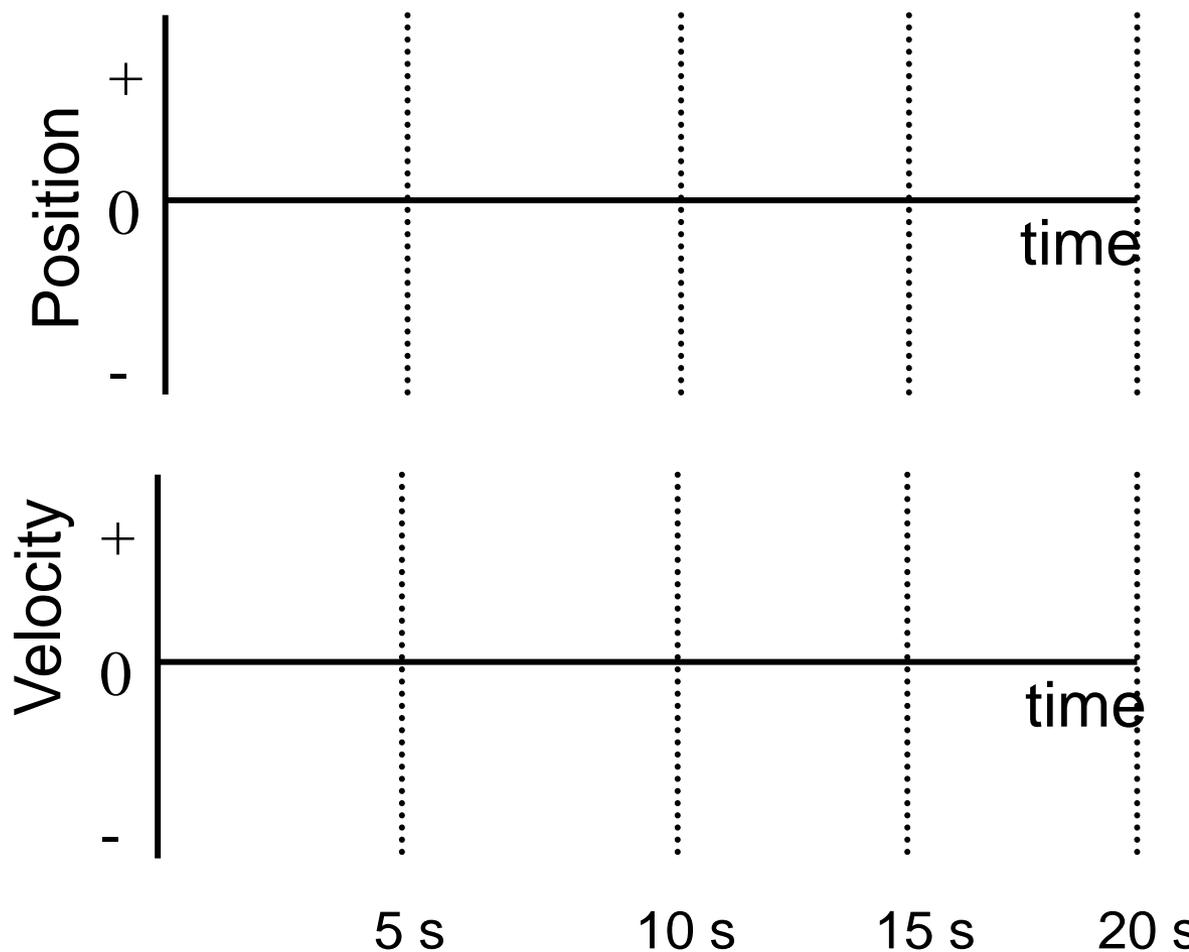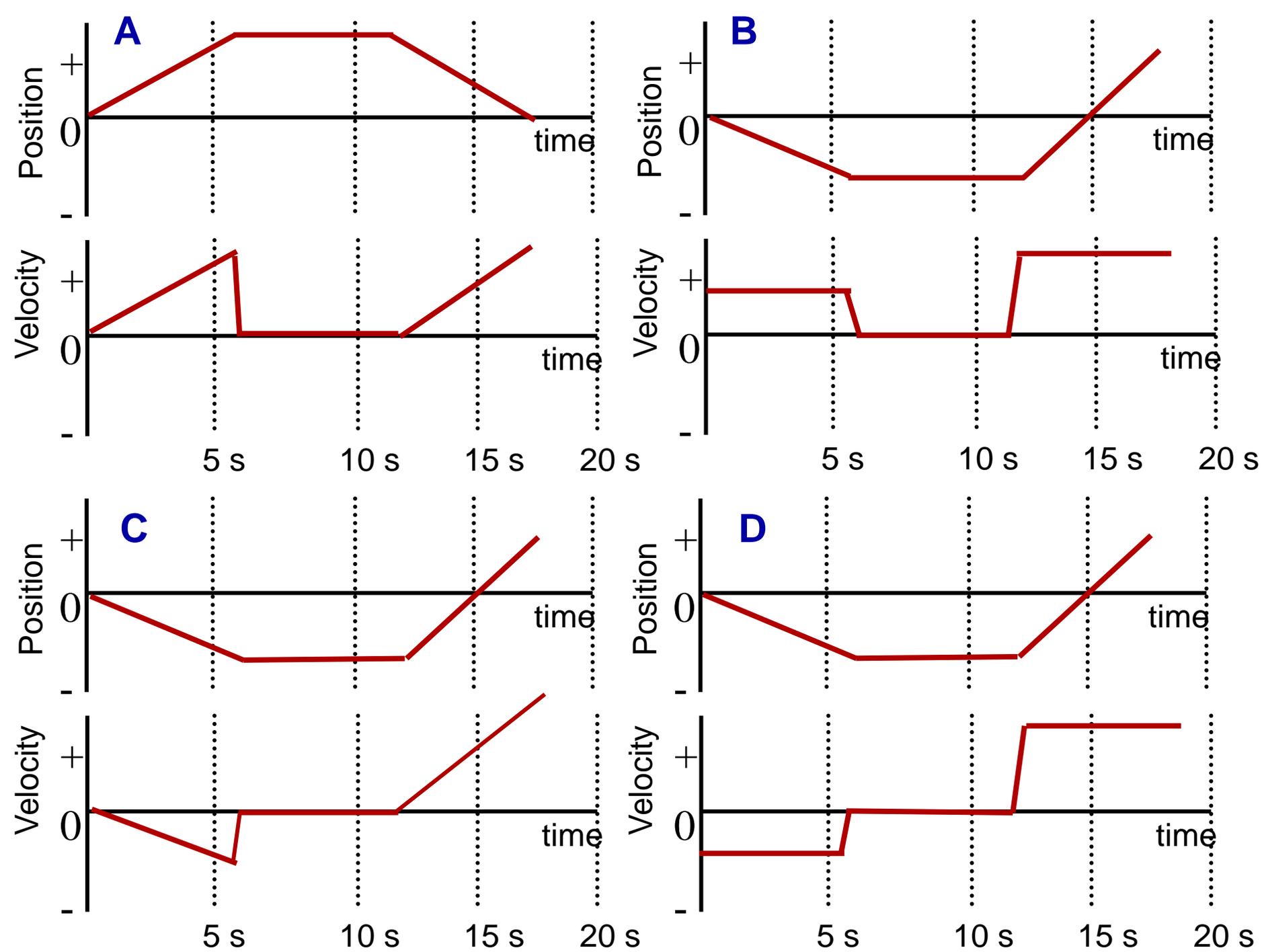# The Moving Man SIM

This is the part of lecture utilizing PhET's "Moving Man" simulation and all of its activities. It is probably most useful for demonstrating and clarifying negative and positive position/velocity/acceleration, which difficult if position, velocity, and acceleration have never been conceptualized this way.
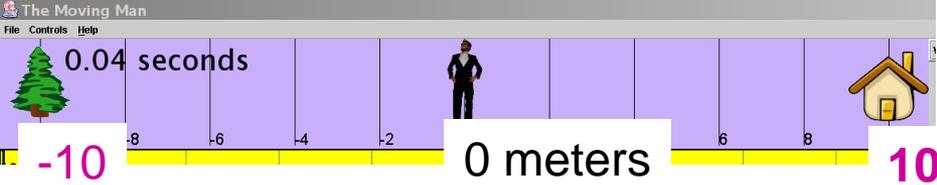
The Moving Man

File   Controls   Help

0.04 seconds

-10   -8   -6   -4   -2   0 meters   2   4   6   8   10

Walk

Inv

Demo 4:
Sketch **position vs time** and **velocity vs time** graphs for when Moving Man:
walks steadily towards the tree for 6 seconds,
then stands still for 6 seconds, and
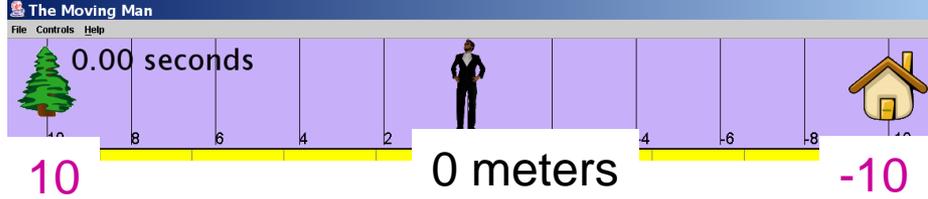then towards the house twice as fast as before for 6 seconds.

Do yours as dashed line, compare with team members then make solid line based on group.

Position

+

0

-

time

Velocity

+

0

-

time

5 s   10 s   15 s   20 s

A

Position

+

0

time

Velocity

+

0

time

5 s   10 s   15 s   20 s

B

Position

+

0

time

Velocity

+

0

time

5 s   10 s   15 s   20 s

C

Position

+

0

time

Velocity

+

0

time

5 s   10 s   15 s   20 s

D

Position

+

0

time

Velocity

+

0

time

5 s   10 s   15 s   20 s

The Moving Man — 0.04 seconds

-10   0 meters   10

Choose to define positive direction as **_towards house_**.

The Moving Man — 0.00 seconds

10   0 meters   -10

Choose to define positive direction as **_towards tree_**.

Sketch graphs for
Moving Man walks <u>from</u> the house <u>to</u> the tree:

Position
+
0
-
time

Position
+
0
-
time

Velocity
+
0
-
time

Velocity
+
0
-
time

5 s   10 s   15 s   20 s

5 s   10 s   15 s   20
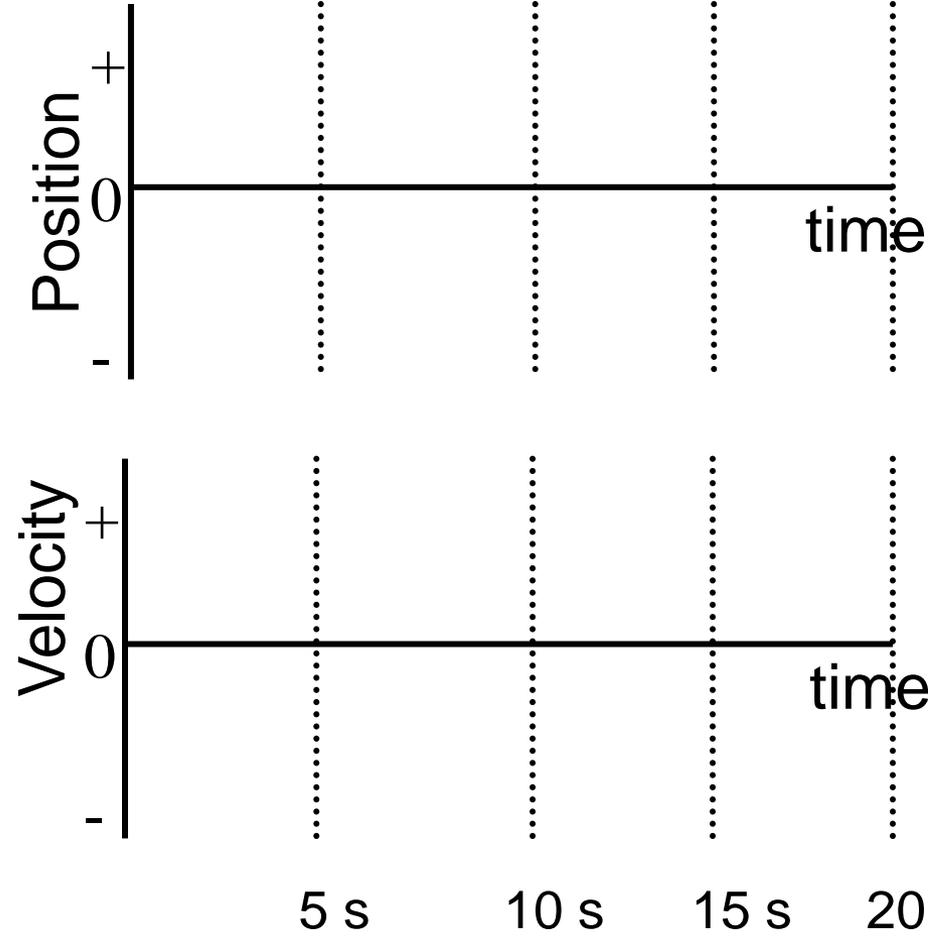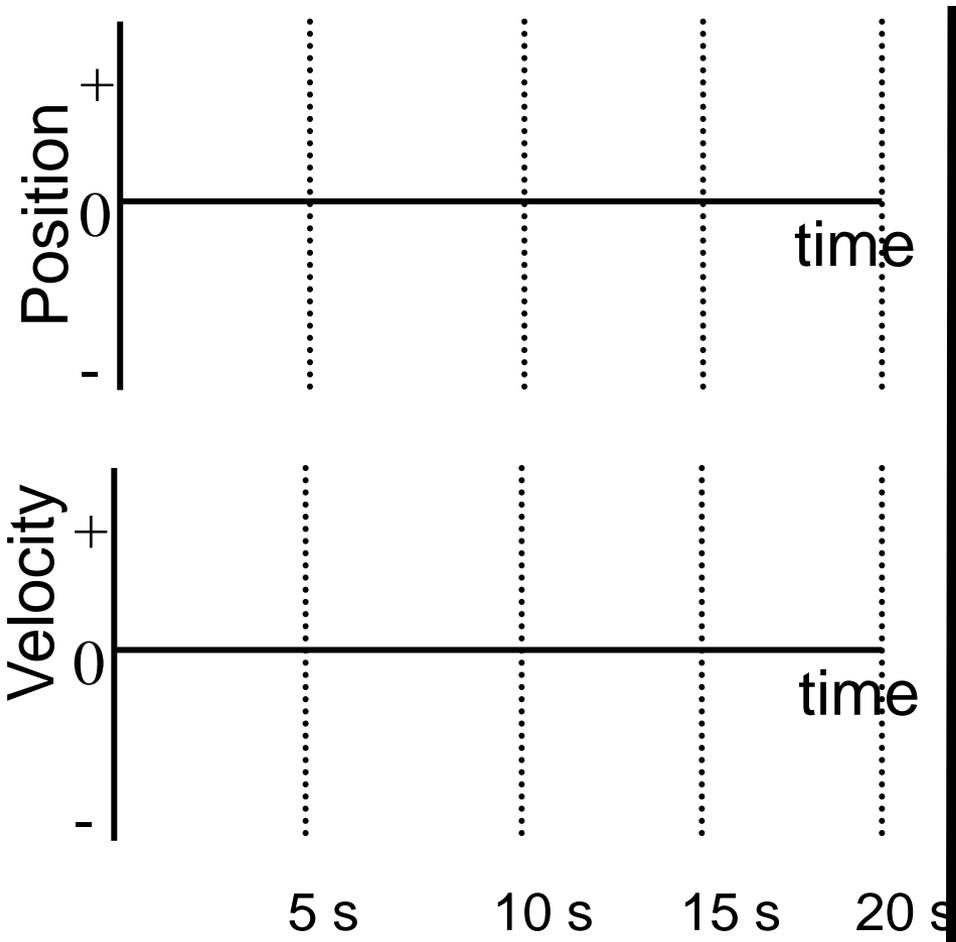
How do the graphs in these 2 cases compare?
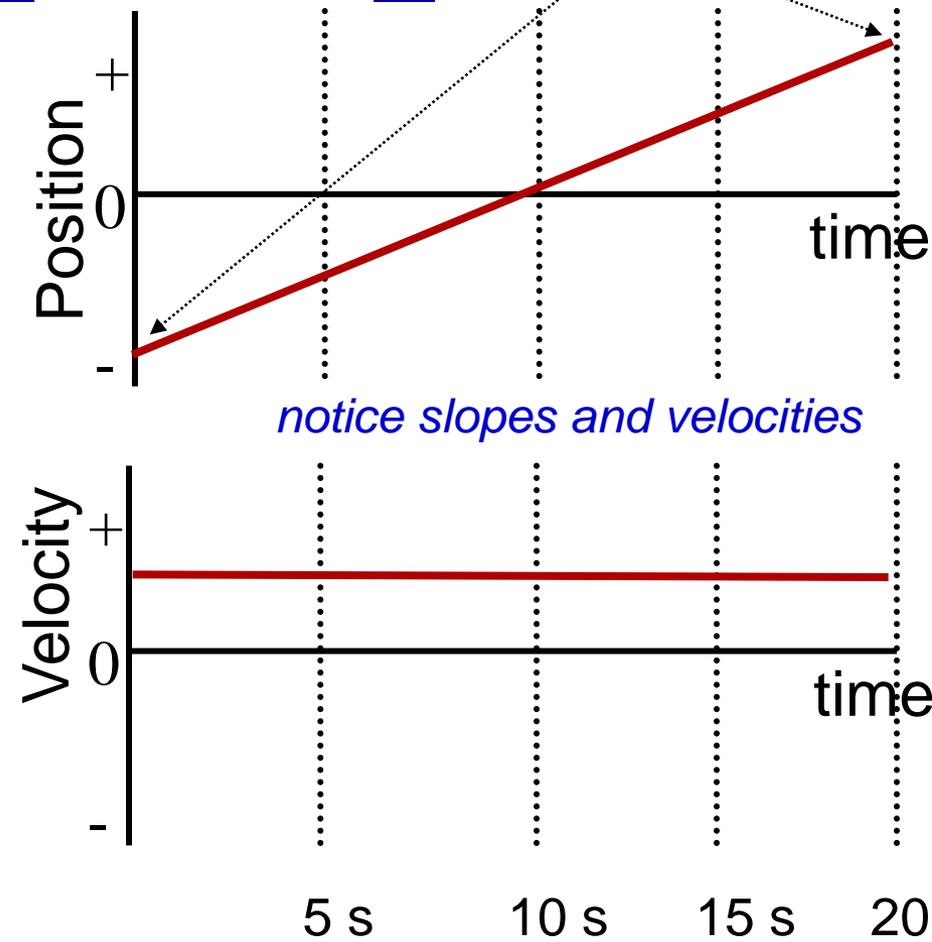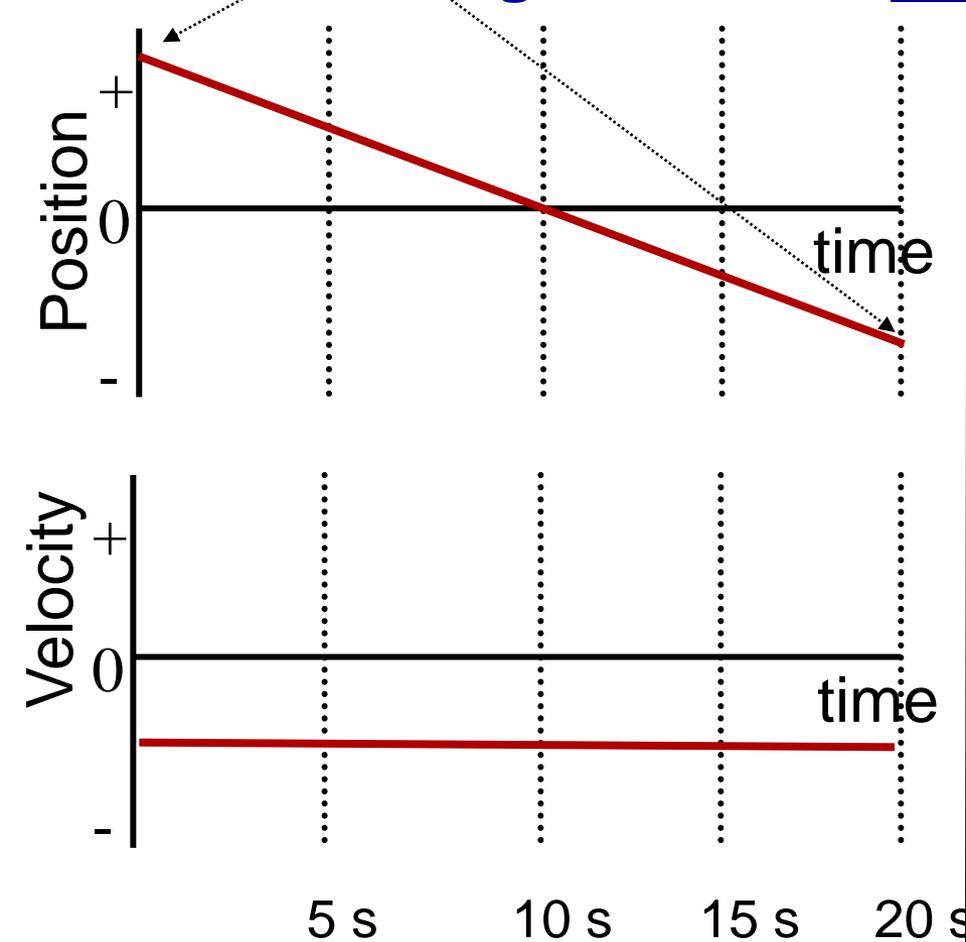
a. The position vs time graphs are different; the velocity vs. time graphs are the same.

b. Both the position vs. time and velocity vs. time graphs are different.

c. Both the position vs. time and velocity vs. time graphs are the same.

d. The position vs time graphs are the same. The velocity vs. time graphs are different.

e. I can't make sense of these graphs.

The Moving Man
File Controls Help

0.04 seconds

-10   0 meters   10

Choose to define positive direction as towards house.

The Moving Man
File Controls Help

0.00 seconds

10   0 meters   -10

Choose to define positive direction as towards tree.

Sketch graphs for
Moving Man walks <u>from</u> the house <u>to</u> the tree:

Position

+

0   time

-

Position

+

0   time

-

notice slopes and velocities

Velocity

+

0   time

-

Velocity

+

0   time

-

5 s   10 s   15 s   20 s

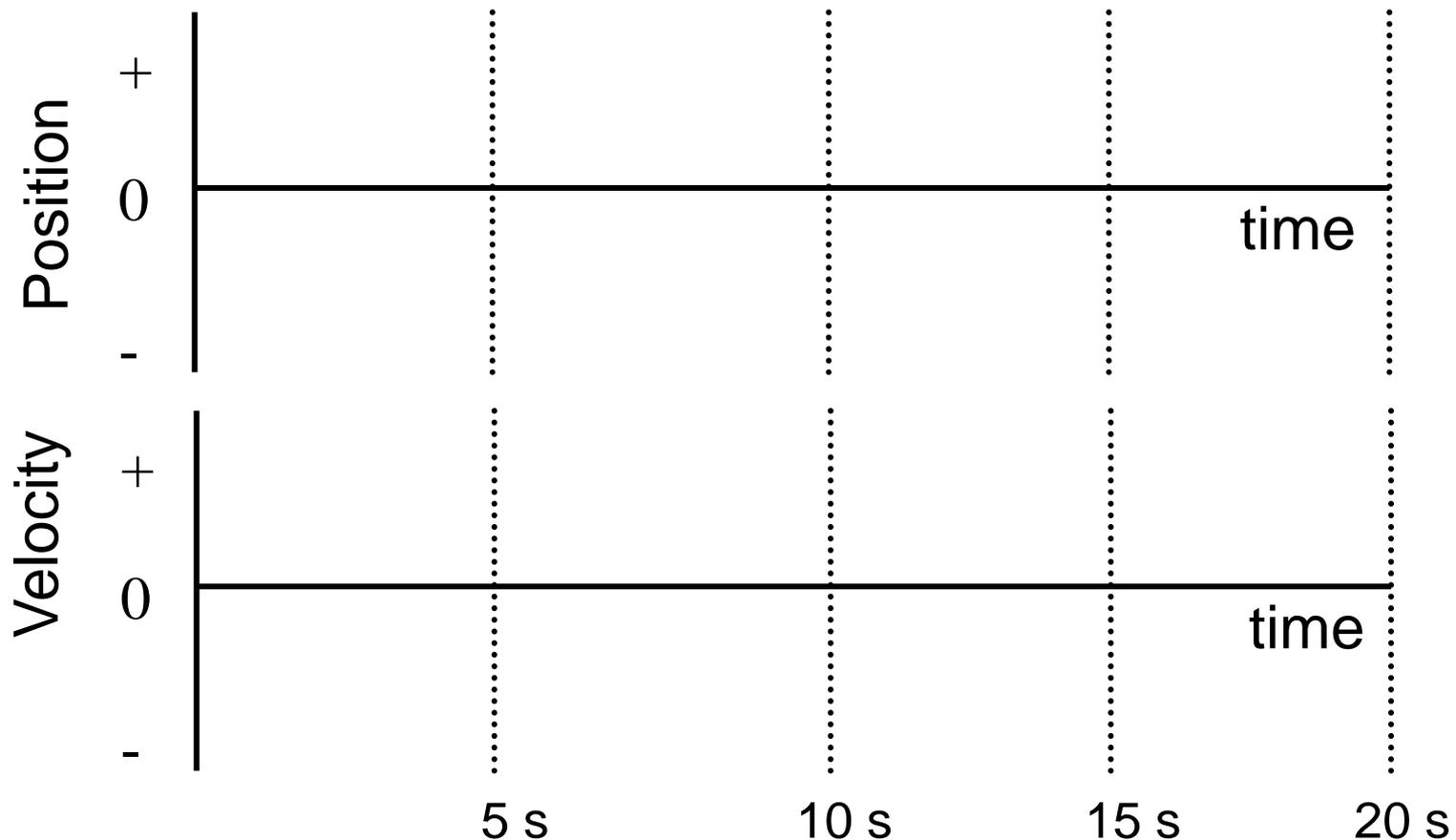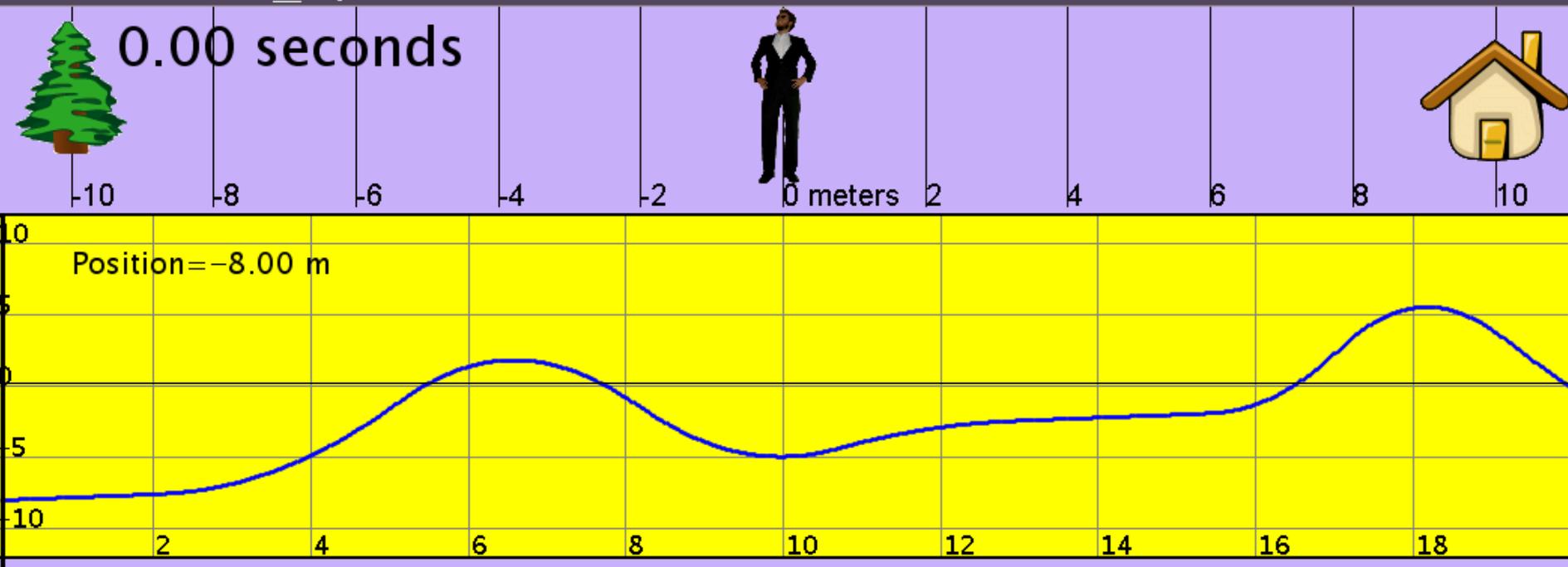5 s   10 s   15 s   20

Human Motion
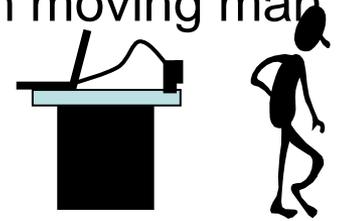
Demo 4:
Sketch **position vs. time** and **velocity vs. time** graphs for when moving man
- walks steadily towards the tree for 6 seconds
- then stands still for 6 seconds, and
- then towards the house twice as fast as before.
Draw your graphs with dashed lines, compare results with team members and then use solid lines based on group results.

Position vs. time graph axes labeled Position (+, 0, -) vs. time, with dotted gridlines at 5 s, 10 s, 15 s, 20 s.

Velocity vs. time graph axes labeled Velocity (+, 0, -) vs. time, with dotted gridlines at 5 s, 10 s, 15 s, 20 s.

0.00 seconds

-10   -8   -6   -4   -2   0 meters 2   4   6   8   10

Position=-8.00 m

How many times does the man's speed go to zero?
a. Never
b. Once
c. Twice
d. Three times
e. Four times