Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Partners \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Constant Motion Homework**

**Describing Position-Time Graphs**

Position

Time

1. How would you walk to create a horizontal line on a position-time graph?

2. How would you walk to create a line that slopes up?

Position

Time

3. How would you walk to a line that slopes down?

Position

Time

4. How would you move to create a line that slopes up steeply first, and then

Position

Time

continues to slope less steeply?

**Constructing Velocity-Time Graphs**

Sketch the velocity-time graph corresponding to the following descriptions of motion.

1. The object is moving away from the reference point at a steady (constant) velocity.

Velocity

Time

2. The object is standing still.

Velocity

Time

3. The object moves towards the reference point at a steady (constant) velocity for five seconds and then stands still for ten seconds.

Velocity

Time

10

20

4. The velocity-time graph of an object is shown below. What is the change in position (displacement) of the object? Show your work.

Velocity (m/s)

Time (s)

-4

2

4

2

4

6

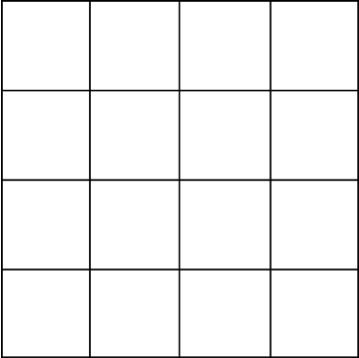
8

-2

**Coordinating Representations**

Draw the corresponding missing graphs with accurate values for an object’s motion.

Time (s)



Velocity (m/s)

1

2

3

4

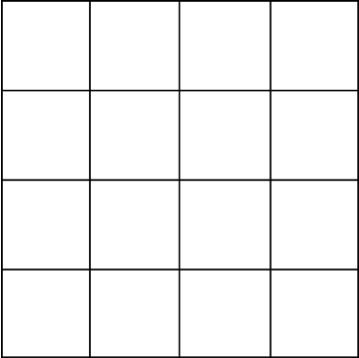
-4

-2

0

2

4



Position (m)

1

0

2

3

4

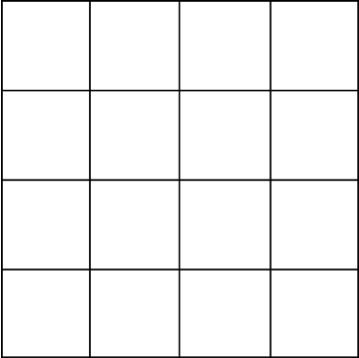
1

2

3

4

Time (s)



Position (m)

1

0

2

3

4

1

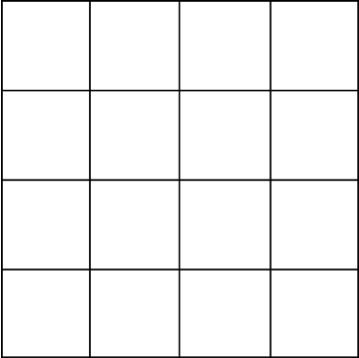
2

3

4

Time (s)

Time (s)



Velocity (m/s)

1

2

3

4

-4

-2

0

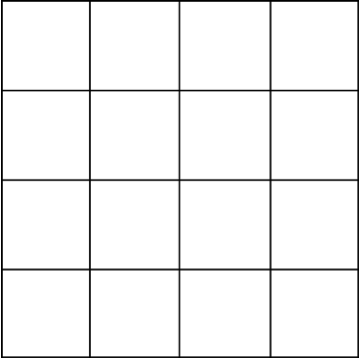
2

4

Draw the corresponding position-time graph and the velocity-time graph with accurate values for the following description of an object’s motion.

An object moves with a velocity of 2 m/s for 10 seconds in the positive direction and then instantaneously changes speed to 4 m/s in the positive direction for another 10 seconds. The object’s total displacement is 60 meters from the reference point.

Time (s)



Velocity (m/s)

10

20

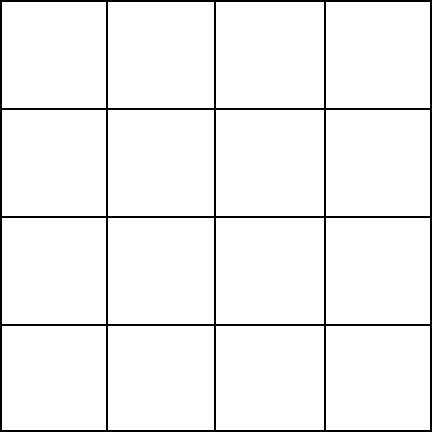
-4

-2

0

2

4



10

20

Position (m)

Time (s)