Page 14 #1-6 &8

1. Motion is the changing position of an object.
2. Displacement
3. Position is the distance and direction of an object from a reference point. If the reference point changes, the distance and direction of the object from the reference point may change.
4. B. Reference direction
5. The displacement is 0 km.
6. The distance and direction of the hands from the reference point (12) have changed.

8 . Your nose is in motion relative to the sidewalk. It is not in motion relative to your ears.

Page 24 #1-5, 7-9

1. Speed is the distance over time. Velocity is speed and direction.
2. An object is traveling at a constant speed when its speed does not change.
3. Average speed is total distance over total time.
4. The bicyclist can speed up , slow down, or change direction.
5. B

7.the graph on the left indicates constant speed. The graph on the right is increasing speed.

8. Yes. To arrive on time, his average speed must be at least. 186 km divided by 3 hours or 62 km/h, which is lower than the speed time.

9. 140 km/h

Page 33 #1-4, 6-8

1. Acceleration is the rate of change of velocity.

2. Divide its change in velocity by time it takes to make that change

3. The rollercoaster can change direction.

4. C

6. Both race cars have the same velocity but different accelerations because the time period is shorter.

7. 0.8m/s/s

0.2 m/s/s

HW #1

To describe an object’s position , you must first choose a(n) reference point as a starting place. From there, you must specify the direction to the object and the distance in which it lies from the starting place. If you are giving directions to two objects located in different directions from the same reference point, it can sometimes be helpful to describe one object as being in the positive direction from that place and the other in the negative direction.

An object is in motion any time its position is changing. In most cases, such a change involves changes in distance and direction from the starting point. However, if an object returns to its starting point, its displacement is zero, even though it might have traveled a considerable distance.

**HW#2**

1. A. The simple direction Ricardo could give Ben is: go west three houses from Joe’s house.

B. Joe’s house serves as the reference point.

C. Distance and direction complete a full description of position.

D. Positive and negative are used to indicate opposite directions if you have a reference direction.

HW#3

1. A) He covered 10 miles

B)The displacement is 2 miles.

2. Her displacement is 0 meters

3. Her distance is 30 meters.

4. Her displacement is 30 meters.

5. Her distance is 100 meters.

6. Her displacement is 50/60 meters.

HW #4

1. Constant speed is the speed at which the same distance is covered each second. Instantaneous speed is the speed at a specific instant in time.
2. The marbles rolls at 5 meters per second.
3. We can conclude that Rider #1 is moving at a faster speed because its line is steeper. This also means that Rider #1 will reach its destination first.
4. Velocity is speed in a certain direction. Speed is distance over time.
5. Velocity is speed and direction of a moving object.
6. Three ways an object can accelerate are: speeding up, slowing down, and changing direction.

HW#5 graph 1

1. N/A
2. 80 m/s
3. 25 m/s
4. 15.6 m/s
5. 10 m/s
6. 4 m/s
7. 2 m/s

HW#5 graph 2

1. 10 m/s
2. 12. 5 m/s
3. 8.6 m/s
4. Max around 9/10 m/s
5. Between 45-55 seconds

HW#6

1. 800 km/h
2. 1000 km/h
3. 800 km/h 🡨-------

---------------🡪 1000km/h

HW#7

1. Acceleration is a measure of a change in velocity over a period of time.
2. Its acceleration is in the opposite direction of its velocity.
3. A car is accelerating because it is changing direction.
4. A= acceleration Vf= final velocity

Vi= initial velocity t= total time

HW#8

1. Acceleration is the change in velocity. An object accelerates when there is a change in speed and/or direction.
2. Motion to produce positive acceleration is acceleration moving with the velocity. Negative acceleration is when acceleration is moving against the velocity.
3. The acceleration of the car is 1 m/s/s
4. Speeding up would be a slanted line upwards on S-T graph. A straight line across would represent constant speed on a S-T graph.

Chapter review

Page 37

1. Position
2. Motion
3. Constant speed
4. Velocity
5. Average acceleration
6. Acceleration
7. Position
8. Reference point
9. Speed
10. Constant speed
11. Average speed
12. Velocity
13. Acceleration

Page 38

1. B
2. A
3. A
4. B
5. D
6. D
7. C
8. D
9. C

Page 39

1. The reference direction is toward the right. The distance is 4 cm. Its displacement is 4 cm to the left. Its speed is 2 cm/s. its velocity is 2 cm/s to the left.
   1. km/h
2. speed – 2m/s avg. accel: 0.2 m/s/s