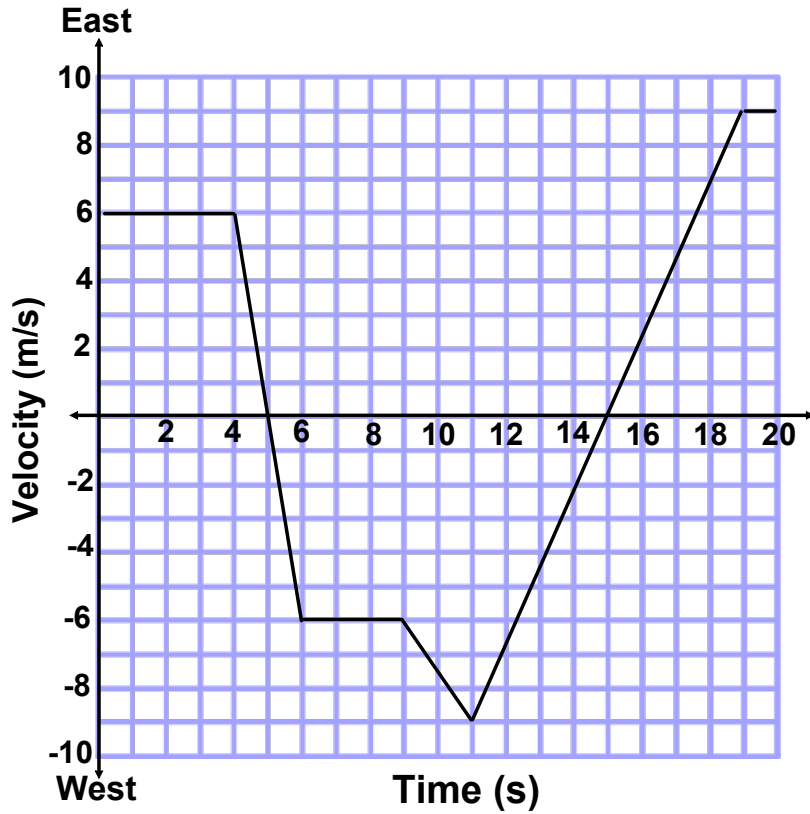


5. Standing on the ground a person throws a ball. It leaves his hand with an upward velocity of 17 m/s.
- Calculate the length of time the ball will be traveling upwards. $\{t = 1.73 \text{ s}\}$
 - Calculate the ball's maximum height. $\{\vec{d}_f = 14.7 \text{ m}\}$
 - Calculate the velocity of the ball when it is 5 m above the ground. $\{\vec{v}_f = \pm 13.8 \text{ m/s}\}$
 - Calculate the position above the ground when the ball traveling at 4.5 m/s upwards. $\{\vec{d}_f = 13.7 \text{ m}\}$
6. A plane changed its velocity from 150 m/s [S] to 415 m/s [N]. The acceleration was a constant 15.0 m/s².
- Calculate the time it took for the plane to change its velocity. $\{t = 37.7 \text{ s}\}$
 - Calculate the time it took for the plane to return to its starting point. $\{t = 4.47 \text{ s}\}$
 - Calculate the displacement of the plane in that time. $\{\vec{d}_f = 5000 \text{ m}\}$
 - Calculate the distance the plane traveled in that time. $\{d = 6500 \text{ m}\}$

Velocity - Time: Course Review #2



1. What is the instantaneous velocity at the 11 second mark?
2. At what time(s) did the object change direction?
3. Calculate the distance traveled during the first 5 seconds. (27 m)
4. During what time interval(s) was the acceleration opposite the direction of motion?
5. Calculate the distance traveled between 11 and 19 seconds. (45 m)

6. Calculate the acceleration at 4.5, 8 and 13.5 seconds. (-6 m/s^2 ; 0 m/s^2 ; 2.25 m/s^2)

7. Calculate the total distance traveled during the 20 seconds. (111 m)

8. Calculate the position of the object at the 20 second mark. (-3 m)

9. Calculate the average speed and velocity for the full 20 seconds. (5.6 m/s ; -0.15 m/s)

10. Assume the object started at position (0,0). Without extensive calculations, estimate at what point in time the object had instantaneously returned to its starting position. ($\sim 10\text{s}$)

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