

**Acceleration**

- Rate of change of \_\_\_\_\_
- \_\_\_\_\_ of \_\_\_\_\_ vs. time graph

**Displacement**

- \_\_\_\_\_ between graph and \_\_\_\_\_ of a \_\_\_\_\_ vs. time graph

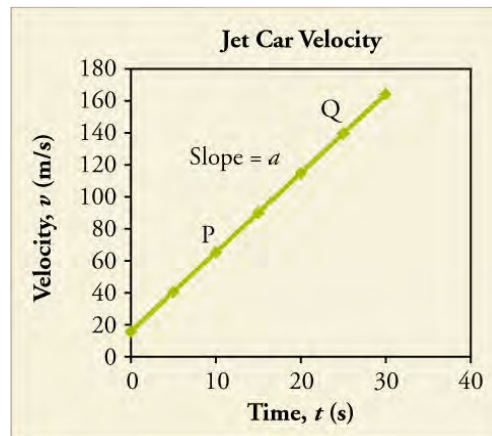
Calculate

a. Displacement over the 30s.

b. Acceleration over the 30s.

c. Instantaneous velocity at 20s.

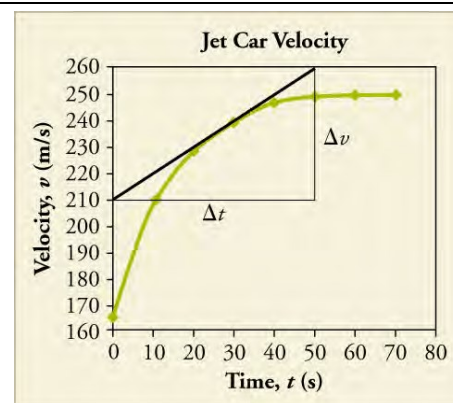
d. Average velocity over the 30s.



Calculate

a. Displacement over the first 20s.

b. Instantaneous acceleration at 30s.

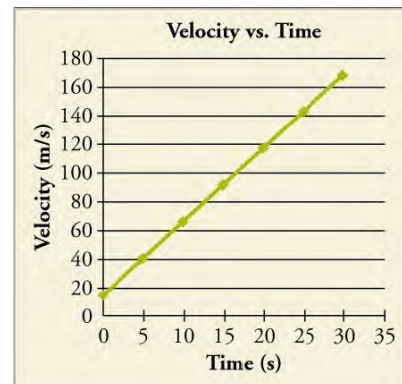


Practice Work

1. Explain how to find (a) displacement, (b) velocity, (c) acceleration from velocity vs. time graph. (RW)
2. How do you estimate the area on a curved graph? (RW)

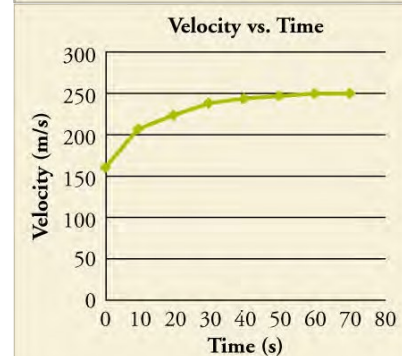
Use the graph to answer the following questions.

3. What is the displacement of the object after 5 seconds? (RW) **138 m**
4. What is the velocity of the object at 20 s? (RW) **118 m/s**
5. What is the acceleration of the object at 20 s? (RW) **5 m/s<sup>2</sup>**
6. What is the average velocity over the entire 30 s? (RW) **92.5 m/s**
7. What is the shape of the acceleration vs time for this situation? (Hint: Think about calculating the acceleration at several times.) (RW)



Use the graph to answer the following questions.

8. What is the displacement of the object after 10 seconds? (RW) **1850 m**
9. What is the displacement of the object between 10 and 30 seconds? (RW) **4500 m**
10. What is the velocity of the object after 60 s? (RW) **250 m/s**
11. What is the acceleration of the object at 20 s? (RW) **1.5 m/s<sup>2</sup>**
12. What is the acceleration of the object at 70 s? (RW) **0 m/s<sup>2</sup>**



Use the graph to answer the following questions.

13. Which point on the graph has the highest acceleration? (RW) **a or b**
14. Which point on the graph has the lowest acceleration? (RW) **k or l**
15. Where does the object have negative acceleration? (List all intervals) (RW) **d-e; h-l**

