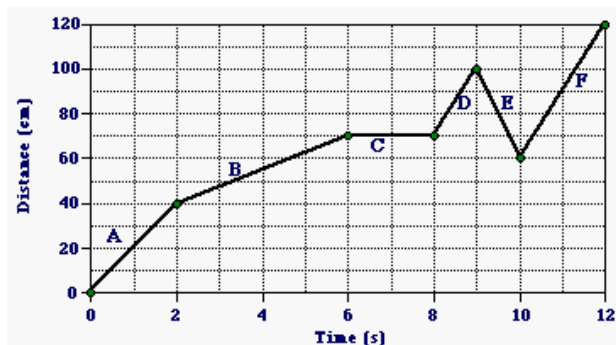


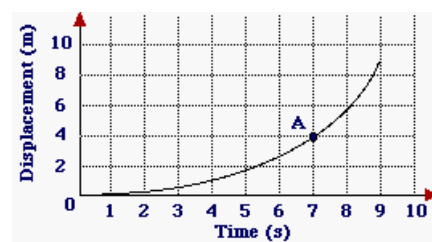
Review 1

1. What is the velocity of section A in m/s?
2. What is the velocity of section C in m/s?
3. What is the velocity of section E in m/s?
4. What is the velocity of section F in m/s?



5. Examine the following graph and answer the questions.

(a) Find the instantaneous velocity at point A.



(b) What is the **average** velocity for the first 8.0 seconds of the trip?

6. A ball thrown straight up into the air reaches its highest point when its velocity and acceleration are equal to :
  - a) velocity = + 9.8 m/s      acceleration = 0 m/s<sup>2</sup>
  - b) velocity = 0 m/s      acceleration = 0 m/s<sup>2</sup>
  - c) velocity = 0 m/s      acceleration = - 9.8 m/s<sup>2</sup>
  - d) velocity = 0 m/s      acceleration = + 9.8 m/s<sup>2</sup>
7. If you throw a ball upwards at 6.0 m/s how fast will the ball be moving when it returns to your hand (just before you catch it). Ignore air resistance?
8. A traveler drives 568 km in 7.2 h. What is the average speed for the trip?
9. If you run with an average speed of 12.0 km/h, how far will you go in 3.2 min?
10. If the average speed of your private jet is  $8.0 \times 10^2$  km/h, how long will it take you to travel  $1.8 \times 10^3$  km?

11. Light travels with a speed of  $3.00 \times 10^5$  km/s. How long will it take light from a laser to travel to the moon (where it is reflected by a mirror) and back to Earth? The moon is  $3.84 \times 10^5$  km away from the Earth.
12. A skier accelerates at  $1.20 \text{ m/s}^2$  down an icy slope, starting from rest. How far does he get in 5.0 s?
13. What is the acceleration of an object that accelerates steadily from rest, traveling 10.0 m in 10.0 s?
14. How long does it take an airplane, accelerating from rest at  $5.00 \text{ m/s}^2$ , to travel 360 m?
15. A jet plane lands with a velocity of 115 m/s and can accelerate at a maximum rate of  $-5.25 \text{ m/s}^2$  as it comes to rest. From the instant it touches the runway, what is the **minimum time** needed before it comes to rest?
16. A car enters a tunnel at 24 m/s and accelerates steadily at  $2.0 \text{ m/s}^2$ . At what speed does it leave the tunnel, 8.0 s later?
17. A runner accelerates uniformly from rest at  $1.40 \text{ m/s}^2$  for 8.00 s.
- What is her final velocity?
- What is her average velocity?
- How far does she travel?
18. A rock is dropped from the 100<sup>th</sup> floor of a tall building (350 m above the ground). How long does it take to fall to the ground below and with what speed will it hit the ground at?

19. A ball is thrown straight upwards and reaches a maximum height of 95 m. With what initial velocity was it thrown?
20. A baseball is throw straight upwards at 28.0 m/s.
- a) To what maximum height will it reach?
- b) How long will it remain in the air (from being thrown upwards to being caught)?

How many significant digits do each of the following have?

21. 103,450

22. 0.0250

Write each of the following in scientific notation:

23. 0.0832

24. 64,200

25. How many seconds are in 24 weeks?

26. How many kilograms are there in 132 pounds? There are 2.2 pounds in 1 kilogram.

**Answers:**

1. 0.20 m/s

2. 0 m/s

3. -0.4 m/s

4. 0.30 m/s

5. 1.5 m/s, 0.75 m/s

6. C

7. -6.0 m/s

8. 79 km/h

9. 0.64 km

10. 2.3 h

11. 2.56 s

12. 15 m

13. 0.20 m/s<sup>2</sup>

14. 12 s

15. 21.9 s

16. 40. m/s

17. 11.2 m/s, 5.6 m/s, 44.8

m

18. 8.45 s; 83 m/s

19. 43.2 m/s

20. 40 m, 5.7 s

21. 5

22. 3

23. 8.32x10<sup>-2</sup>

24. 6.42x10<sup>4</sup>

25. 1.45x10<sup>7</sup>

26. 60 kg