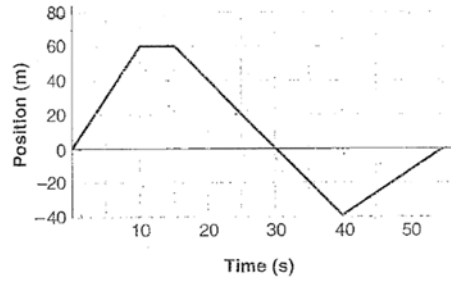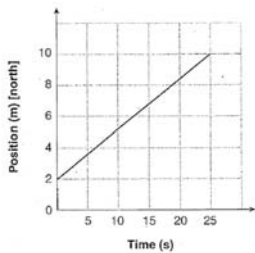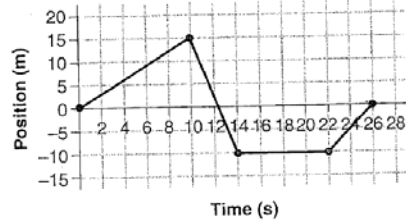Science 10                  <u>Physics Review</u>

1. What is the difference between distance and displacement?

2. How would you calculate displacement?

3. How would you calculate distance?

4. What is the position at 20 $s$?

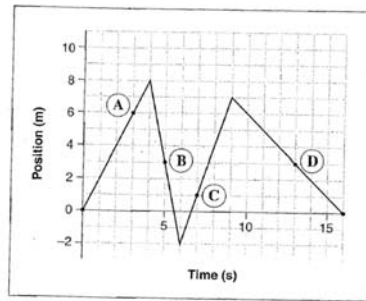5. What is the velocity from 20 $s$ to 40 $s$?

6. Describe the velocity for each of the time intervals.

7. The graph shows the motion of a rolling ball.
How would you calculate the velocity of the ball?

8. Calculate the velocity for each lettered section.

9. What is the position of the ball at 0.30 $s$?

10. How would you calculate the velocity of the ball?

11. What would a velocity-time graph that corresponds to the position-time graph look like?
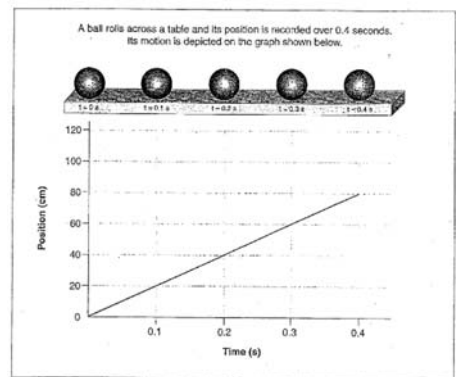
12. A spider can crawl at $0.75\frac{m}{s}$. How long would it take the spider to crawl 7 $m$ across a kitchen floor?

13. Kurtis walks at $33\frac{km}{h}$ for 3.3 $h$. How far does he walk?

14. A hockey puck slides across the ice, moving at $4.3\frac{m}{s}$. How far will it travel in 0.50 $s$?

15. A car travels 240 $km$ in 2.0 $h$ and another 140 $km$ in 1.5 $h$. What is the average velocity of the car for the entire trip?

16. A honey bee flies 32 $m$ [$North$] in 10 $s$. What is its average velocity?

17. What is required for a car to have a negative acceleration?

18. What is required for a car to have a positive acceleration?

19. A ball rolls down a ramp from rest and its velocity increases to $+4.0 \frac{m}{s}$. Describe its acceleration.
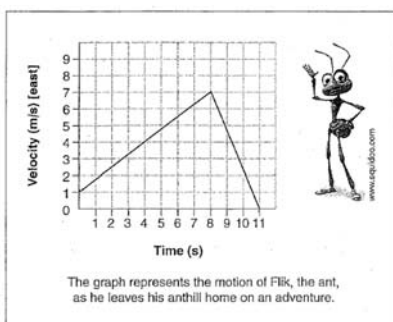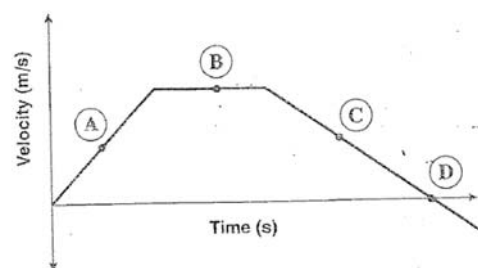
20. What is the velocity at $5.0\ s$?

21. Determine the acceleration from $4.0\ s$ to $7.0\ s$.
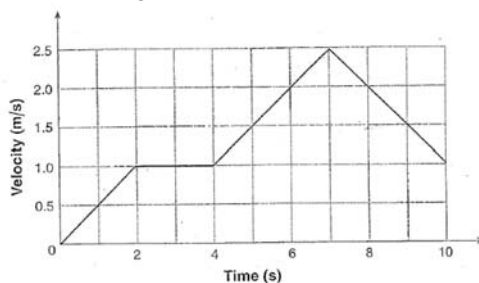
22. Sketch a velocity-time graph that represents the motion of an object that initially moves with negative acceleration, followed by a constant velocity?

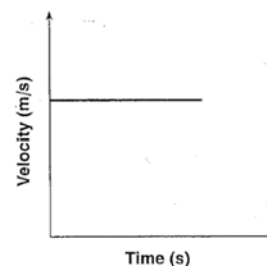23. Describe the acceleration at each letter.

24. Describes the motion of the object.

25. What is Flik's acceleration at $t = 9.0\ s$?

26. Describe Flik's motion.

The graph represents the motion of Flik, the ant, as he leaves his anthill home on an adventure.

27. What would the position-time graph look like that is the same motion as the velocity-time graph?

28. A car travelling at $+70 \frac{m}{s}$ has an average acceleration of $-6.25 \frac{m}{s^2}$. How long does it take the car to stop?

29. A spacecraft travelling at $+2250 \frac{m}{s}$ slows down at a rate of $-7.9 \frac{m}{s^2}$ for $75\ s$. Determine the final velocity.

30. A pitcher throws a baseball with a velocity of $+34 \frac{m}{s}$. The batter hits the ball which then travels with a velocity of $-28 \frac{m}{s}$. If the ball was in contact with the bat for $0.0020\ s$, what is the acceleration of the baseball as it makes contact with the bat?

31. Imagine Superman accelerating at $47 \frac{m}{s^2}$ for $2.5\ s$. If he starts from rest, what is his final speed?

32. A rollercoaster accelerates at $+6.5 \frac{m}{s^2}$. If its initial velocity is $+1.3 \frac{m}{s}$, how much time will it take to reach $+25 \frac{m}{s}$?

33. What is the acceleration of a car as it increases its velocity from $+22 \frac{m}{s}$ to $+33 \frac{m}{s}$ in $5.0\ s$?

34. If Galileo released a cannonball from the Leaning Tower of Pisa, it would accelerate downwards at $9.81 \frac{m}{s^2}$, hitting the ground at a speed of $25 \frac{m}{s}$. How much time would the cannonball spend in the air?