# Review: Conversions; Metrics; Scientific Notation;
Linear Equations; Kinematic Equations.

1. *Notes: "Scientific Notation"*
   A. Write 13,400 in scientific notation:

   B. Write 0.075 in scientific notation:

   C. Write out 5.2×10^6 in normal notation:

3. *Notes: "Conversions"*
   A. Convert 1.2 mi/hrs to miles per min.

   B. Convert 30 m/sec to ft/sec.

   C. Convert 80 mi/hr to ft/min

2. *Notes: "Metrics"*
   A. Convert 160 cm to meters.

   B. Convert 12,000 µm to mm:

   C. Convert 12,000,000 liters to megaliters (ML).

4. *Notes: "Speed"*
   An object moves from 3 m away to 15 m away in 4 seconds.
   A. Calculate displacement.

   B. Calculate velocity.

5. *Notes: "Acceleration"*
   A. 15 m/s to the right.
      i. Speed or Velocity? Why?
      ii. Scalar or Vector? Why?

   B. An object is going 4 m/s around a circle. Why is it accelerating?

   C. An object accelerates 3 m/s^2 for 10 seconds. If it started at – 4 m/s, how fast is it going afterward?

6. *Notes: "Kinematic Equations"*
   A. An object travels around a circle 3 times. If the circle has a radius of 20 m, calculate the displacement of the object.

   B. An object moves from 10m to –10m. Was the object's velocity positive or negative?

   C. An object moving at 30 m/s ends up going 5 m/s. Was the object's acceleration positive or negative?

   D. An object moving at –20 m/s ends up going –10 m/s. Was the object's acceleration positive or negative?

Notes: "Kinematic Equations"
7. Given the following variables, choose a kinematic equation.
   DON'T SOLVE.
   a = -5 m/s^2 Equation:
   Δx = 20 m
   t = 5 sec
   Vf = _____

8. Given the following variables, choose a kinematic equation.
   DON'T SOLVE.
   Vi= 8 m/s   Equation:
   Vf = -12 m/s
   a = 6 m/s^2
   Δx = _____

9. A car travels 150 m to the right in 8 sec. If it has an acceleration of 6 m/s^2, how fast was it moving before?
   Variables: Equation: Solve:

10. An object moving 20 m/s starts to accelerate. If it moves 80 m, how fast is it going after 4 seconds.

Position vs. Time

Line A Line B Line C Line D

Position (m): 0–12
Time (sec): 0–12
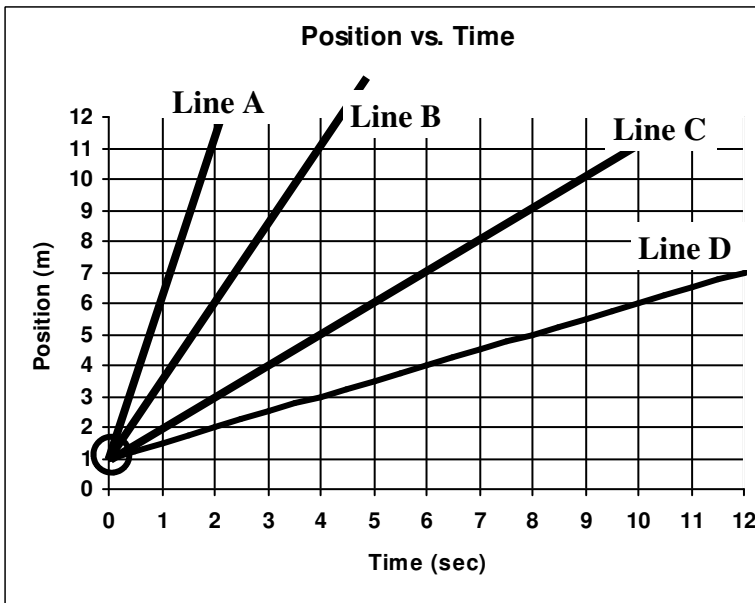
11. A. Circle where each line crosses 6m.
    B. What is the initial position of each line?

    C. Using 6m as your final position, what is the change of position for each line?

    D. Write the time for each line to reach 6m:
    Line A: Line B:
    Line C: Line D:

    E. Calculate the velocity of each line.
    Line A: Line B:

    Line C: Line D:

12. A. Which line shows the fastest velocity?   B. Which line shows the slowest velocity?

    C. So, the slope of a position vs. time graph shows the object's:

Position vs. Time

Position (m): 0–12
Time (sec): 0–5
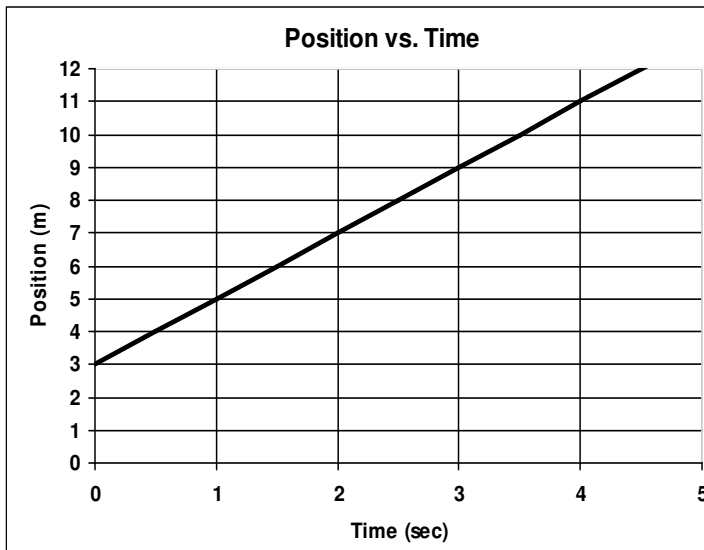
13. A. Mark the dependent and independent variables.
    B. Calculate slope:

    C. What is the initial position of the object?

    D. What is the speed of the object?

    E. Write the linear equation for this graph:

    F. When will the object be 15.5 meters away?

14. In the graph above
    A. Is the slope constant or does it change?

    B. What is the slope of the above graph?

    C. Graph the velocity of the object above on the velocity vs. time graph at the right.

15. What does the slope of a velocity vs. time graph tell you about an object?

Velocity vs. Time

Velocity (m/s): 0–6
Time (sec): 0–5