

Question 3. How many significant figures are each of the following numbers, please provide "scientific notation" working.

193.7

2.00300

0.30021

0.0004510


-46.0102

Question 4.

a) Calculate the vector components (A_x, A_y) for vector \vec{A} and (B_x, B_y) for vector \vec{B} .

b) Given a vector $(-1.93, -2.74)\text{m}$ calculate its magnitude and direction angle. (Please draw a diagram.)

Question 5. A brick falls from a height of 17.1m to the ground. How fast was the brick moving when it hit the ground? How long did it take to reach the ground? Assume its initial speed was zero. (Draw diagrams.)

Question 6. 

The points represent the motion of a car separated by equal time intervals beginning at point A.

1. Draw velocity vector for each step in this motion.
2. Draw acceleration vectors.
3. In words describe the motion between A and B and then between B and C.

Question 7.

The skier is being pulled up the hill which has an incline angle of 25° . There is friction between the skis and the snow.

- a) Draw a motion diagram for motion along the slope.
- b) Select your x and y coordinates and draw all forces acting on the skier.
(The Free Body Diagram.)
- c) Determine the angles for all the forces from the x direction.
- d) Write out all the forces in Cartesian coordinates.
- e) If there is no acceleration, write down the x-component and y-component equation for Newton's First Law.