Be sure to show evidence of your thinking where appropriate. Include UNITS on all final answers. Final answers round to TWO decimal places, round angles to ONE decimal place. Use a RULER for all diagrams.

1. A go cart is travelling at $4.5 \mathrm{~m} / \mathrm{s}[\mathrm{E}], 2$ seconds later it is travelling at $8 \mathrm{~m} / \mathrm{s}$ [ $\mathrm{N} 60^{\circ} \mathrm{E}$ ]. What is the acceleration of the go cart as it rounds the corner of the track (mag. and direction)? Draw a scale diagram to help illustrate your solution. (6 marks)
2. A 3.6 kg flower pot at rest, falls off a window sill 12 m above the street level due to a stiff wind. The outside temperature is $20^{\circ} \mathrm{C}$ and there is a relative humidity of $30 \%$. The flower pot narrowly misses a man of height 1.8 m tall and mass 78 kg . The flowerpot continues to fall into an open sewer grate (diameter 80 cm ) and comes to rest at the bottom of the sewer 3 m below street level. (5 marks)
(a) What is the total flight time of the flower pot?
(b) What is the temperature of the day in Fahrenheit?
(c) What is the speed of the flower pot the instant before it hits the ground at the bottom of the sewer?
3. Use the following Velocity-Time Graph to generate the corresponding position-time graph and accelerationtime graph. Accuracy and neatness are part of this question, use a PENCIL to draw your graphs. (6 marks)

