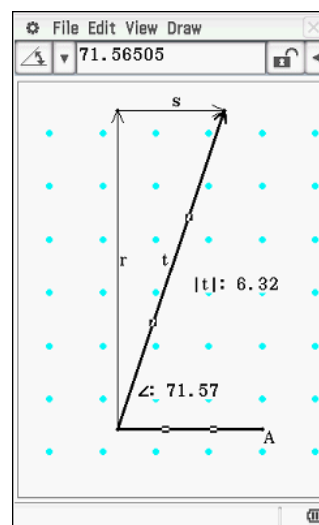# Activity 7   Velocity vectors

1.

    a)   From Geometry, resultant velocity is ≈ 6.32 m/s travelling downstream at an angle of $\approx 71.6°$ relative to the river bank.

    b)   From Geometry,

        (i)   boat should be pointed upstream at an angle of $\approx 70.5°$ relative to the river bank.

        (ii)   Resultant speed is ≈ 5.66 m/s and time for the journey is ≈ 26.5 s.

2.

Pilot should point the plane on a bearing of $\approx 043.6°$. Resultant speed is ≈ 265.5 km/h. Subsequent time for the journey is 67.8 mins.

Note: vector labels have been changed for clarity.
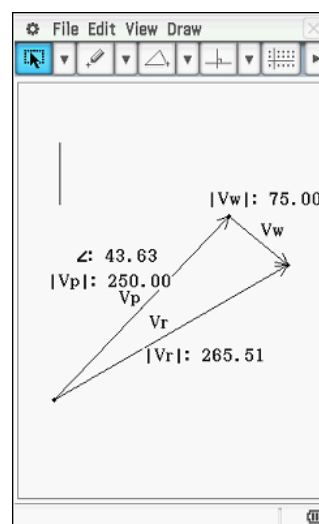
3.

For the return journey, the pilot should point the plane on a bearing of $\approx 256.4°$ (360-103.6). The resultant speed is ≈ 214.2 km/h. Subsequent time for the journey is ≈ 84 mins.