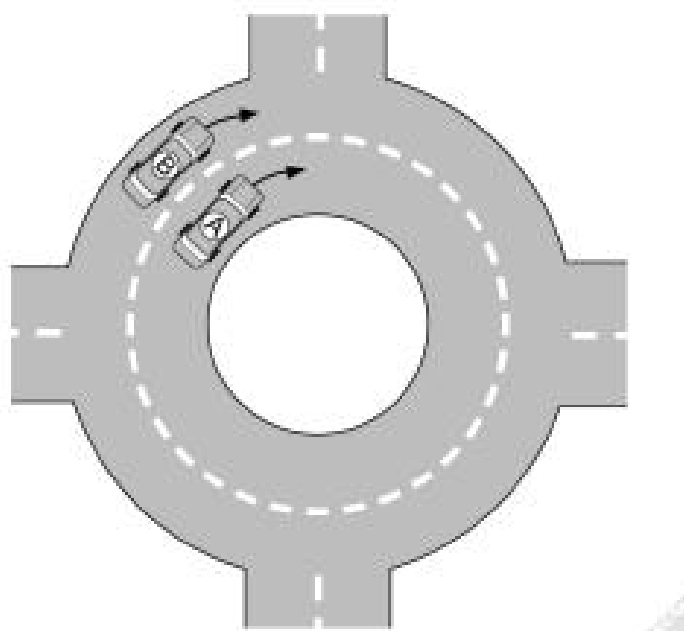**Question 9** (6 marks)

Cars A and B are moving in a circle around a horizontal dual lane roundabout at a constant speed of 30 km h^{-1} as shown in the diagram below. (Note: diagram not to scale.)

(a) Compare the acceleration of cars A and B. Include an equation in your answer. (3 marks)

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The roundabout currently has a maximum speed limit of 30 km h^{-1} to enable the cars to travel safely. Engineers have been asked to redesign the roundabout so as to increase the safe speed limit to 50 km h^{-1}, while still maintaining the same inner and outer radius.

(b) How can the roundabout be redesigned to enable cars to travel safely at a higher speed? Explain your answer. Calculations are not required. (3 marks)

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