Gravity Model Exercise

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Country 1 produces 10% of world sales of automobiles while country 2 produces 5%. Country 1 is a net exporter while country 2 is a net importer.

1. In a frictionless world economy, shipments from 1 to 2 must exceed what fraction of world total shipments?

2. Shipments from 2 to 1 in a frictionless world as a share of world shipments are limited how?

3. In a world of frictions, Country 1 has a Constructed Home Bias equal to 5. Its internal sales as a share of world shipments are limited how?

4. In a world of frictions, the elasticity of trade with respect to distance is equal to -1. Countries 2 and 3 are equal in auto purchases shares and in all other relevant ways except that Country 3 lies 3 times further than Country 2 does from Country 1 (e.g. 1500 miles vs. 500 miles). How much more does Country 1 sell to Country 2 than to Country 3?

5. Country 1 has growth rate of 10% while country 2 has growth rate of 5%, and world growth is 2%. In a frictionless world (or all else equal in a world with frictions), what is the growth rate of country 1's exports to country 2?