

# A Problem for Applied Mathematics Concerning Fuel Consumption

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The following question comes from [1]. Suppose that, in order to reduce automobile gasoline consumption, the government sets a fuel-efficiency target of  $T$  km/liter, and then decrees that, if an auto maker produces a make of car with fuel efficiency of  $b < T$ , then it must also produce a make of car with fuel efficiency  $rT$ , for some  $r > 1$ , such that the average of  $rT$  and  $b$  is  $T$ . Assume that the car maker sells the same number of each make of car. The question is: Is this a good plan? Why or why not? Be specific and quantitative in your answer. Hint: the correct answer is No! It is not a good plan.

## References

- [1] Quinn, F. (2011) “A science-of-learning approach to mathematics education.” *Notices of the American Mathematical Society*, **58**, pp. 1264–1275; see also <http://www.math.vt.edu/people/quinn/>.