Homework 2

Timofei Ryko

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We have the following data:
$m = 2500$ kg
$d = 19$ inches $= 0.4826$ m
$v = 100$ km/h $= 27.778$ m/s
$t = 2$ s
We can easily calculate the power as kinetic energy devided by time:
$P = \frac{E_{kin}}{t} = \frac{mv^2}{2t} = 482,260$ W
According to Newton 's second law:
$F = \frac{ma}{4} = \frac{mv}{4t} = 8,680$ N
Now let's calculate the torque:
$T = 4Fr = 2Fd = 8379$ N/m