Question #75151, Physics / Mechanics | Relativity |

The cylindrical head bolts on a car are to be tightened with a torque of 62.0 N·m. If a mechanic uses a wrench of length 20 cm, what perpendicular force must he exert on the end of the wrench to tighten a bolt correctly?

Need to calculate:

F - ?

$r = 20 \ cm = 0.20 \ m$

$M = 62.0 \ N \cdot m$

Solution:

$$M = F \cdot r \rightarrow F = \frac{M}{r}, \ F = \frac{N \cdot m}{m} = N, \ F = \frac{62.0}{0.20} = 310.$$

Answer: *F*=310 N