MECH230 - Fall 2024
Recommended Problems - Set 00

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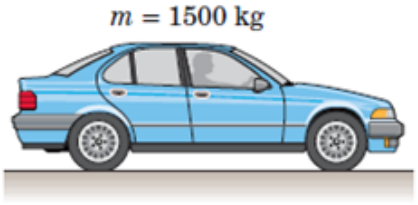
The problems are taken from J. L. Meriam, L. G. Kraige, and J. N. Bolton (MKB), Engineering Mechanics: Dynamics, Ninth Edition, Wiley, New York, 2018.

1. [MKB 1/2] This problem is included to familiarize you with the U.S. unit of mass, slugs. Please read this document before solving this problem. We will be using MKB's convention for units. Note that 1 kg is approzimately 0.0685218 slugs.

1/2 **Determine the weight in newtons of a car which has a mass of 1500 kg. Convert the given mass of the car to slugs and calculate the corresponding weight in pounds.**

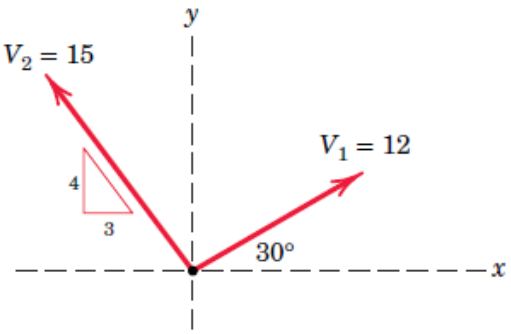


PROBLEM 1/2

 Compiled on 08/27/2024 at 3:06pm

2. [MKB 1/3] In typed notes, a vector is denoted by boldface. Take the unit vectors $\mathbf{E}_x$ and $\mathbf{E}_y$ to point along the x and y axes respectively and compute the required results. Draw the resulting vectors where applicable.

1/3 **SS** For the given vectors $\mathbf{V}_1$ and $\mathbf{V}_2$, determine $V_1 + V_2$, $\mathbf{V}_1 + \mathbf{V}_2$, $\mathbf{V}_1 - \mathbf{V}_2$, $\mathbf{V}_1 \times \mathbf{V}_2$, $\mathbf{V}_2 \times \mathbf{V}_1$, and $\mathbf{V}_1 \cdot \mathbf{V}_2$. Consider the vectors to be nondimensional.



PROBLEM 1/3