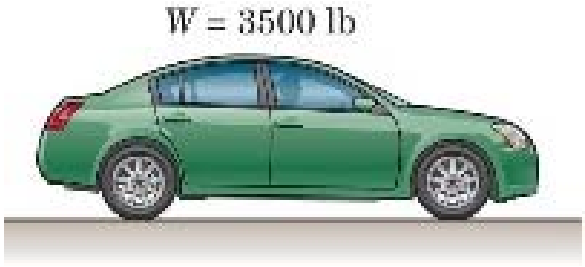
Engr 154 HW #1

Meriam, Kraige & Bolton, *Dynamics*, 8th Ed.

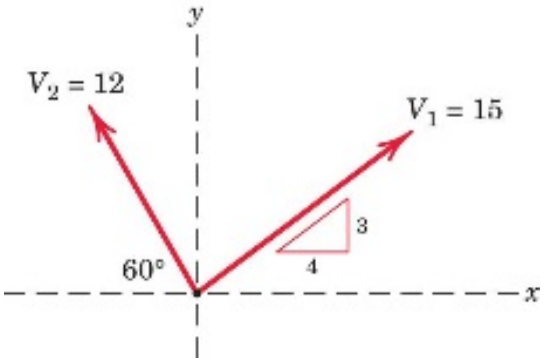
Chapt. 1: 1, 3, 8, 11

1/1 For the 3500-lb car, determine (a) its mass in slugs, (b) its weight in newtons, and (c) its mass in kilograms.



1/3 For the given vectors $\underline{\boldsymbol{V_1}}$ and $\underline{\boldsymbol{V_2}}$ determine:
(a) $V_1 + V_2$; (b) $\underline{\boldsymbol{V_1}} + \underline{\boldsymbol{V_2}}$, (c) $\underline{\boldsymbol{V_1}} - \underline{\boldsymbol{V_2}}$,
(d) $\underline{\boldsymbol{V_1}} \times \underline{\boldsymbol{V_2}}$, (e) $\underline{\boldsymbol{V_2}} \times \underline{\boldsymbol{V_1}}$, (f) $\underline{\boldsymbol{V_1}} \cdot \underline{\boldsymbol{V_2}}$.

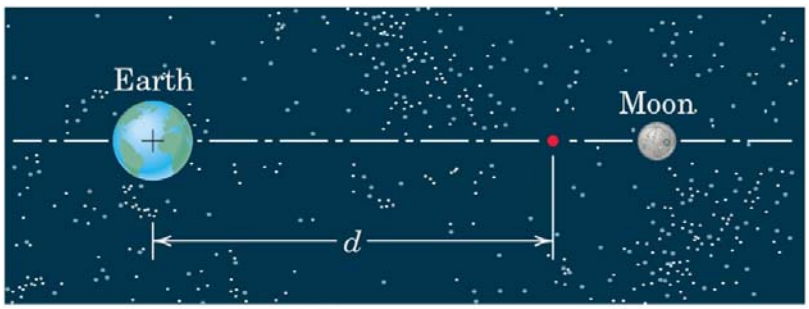
Hint: Do not assume the vectors are perpendicular to each other.



1/8 Determine the absolute weigh and the weight relative to the rotating earth of a 60-kg woman if she is standing on the surface of the earth at a latitude of 35°.

Hint: use the graph and/or equation in Chapter 1

1/11 Calculate the distance d from the center of the earth at which a particle experience equal attractions from the earth and from the moon. The particle is restricted to the line through the centers of the earth and the moon. Justify the two solutions physically [in words]. Refer to Table D/2 of Appendix D as needed.



Not to scale