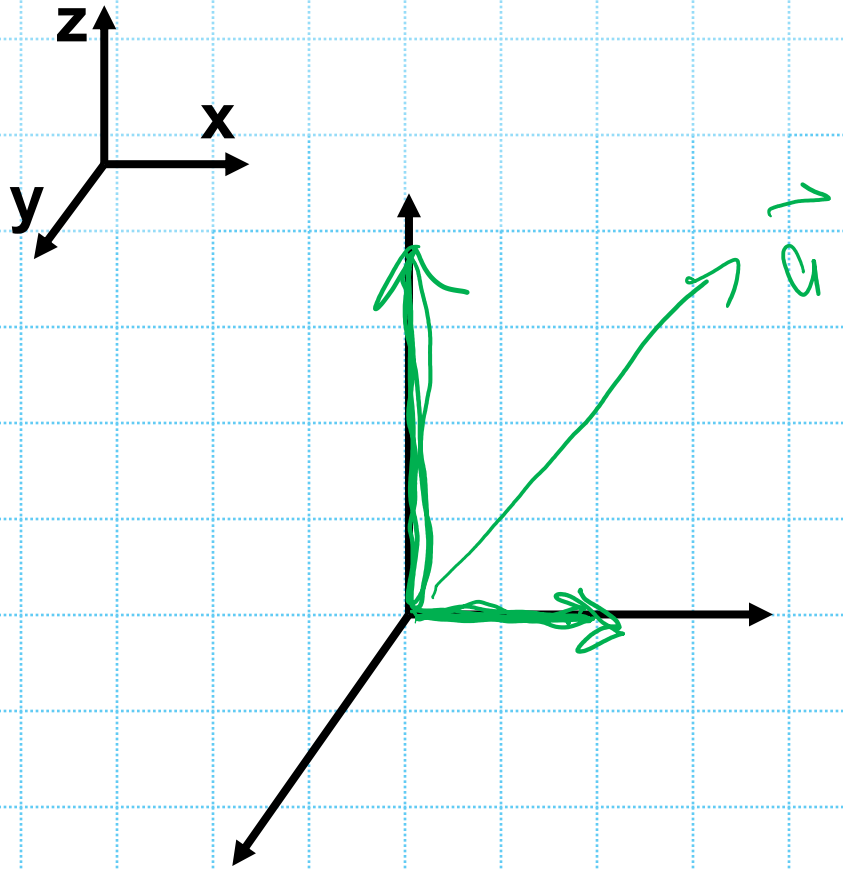
Vector Mathematics II

Engineering Fluid Mechanics

Dr. Kelly Kibler
Department of Civil, Environmental & Construction Engineering
University of Central Florida



$$\vec{a} = (a_x)\hat{i} + (a_y)\hat{j} + (a_z)\hat{k}$$

$$2 \qquad 0 \qquad 4$$

$$\vec{a} = \left[(a_x)^2 + (a_y)^2 + (a_z)^2\right]^{\frac{1}{2}}$$

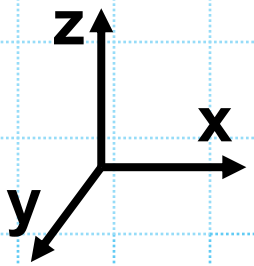
$$= \left((2)^2 + (0)^2 + (4)^2\right)^{\frac{1}{2}}$$

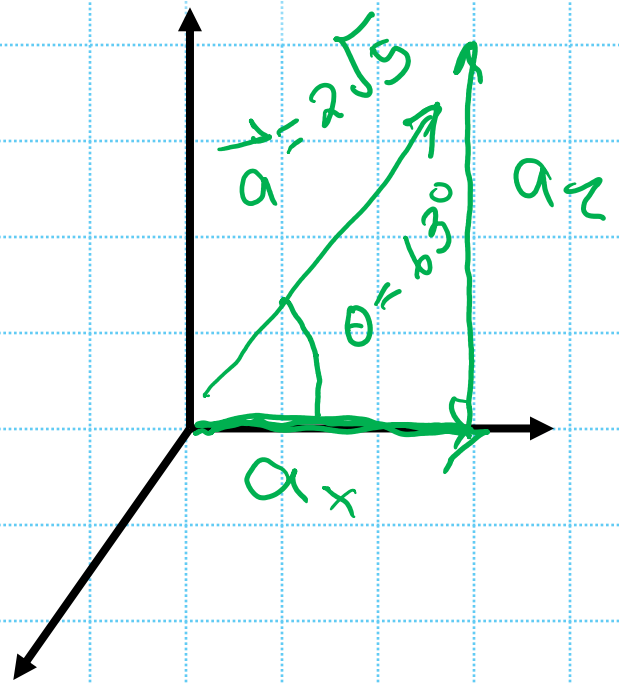
$$= (4 + 0 + 16)^{\frac{1}{2}}$$

$$= (20)^{1/2}$$

$$\vec{a} = 2\sqrt{5}$$

Vector Magnitude





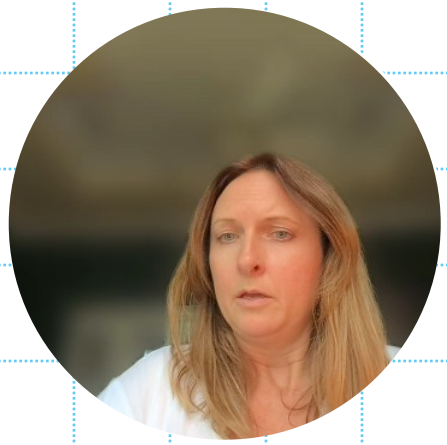
$$\tan\theta = \frac{a_z}{a_x}$$

$$\theta = \tan^{-1}\left(\frac{a_z}{a_x}\right)$$

$$= \tan^{-1}\left(\frac{4}{2}\right)$$

$$\theta = 63.43^\circ$$

Vector Direction



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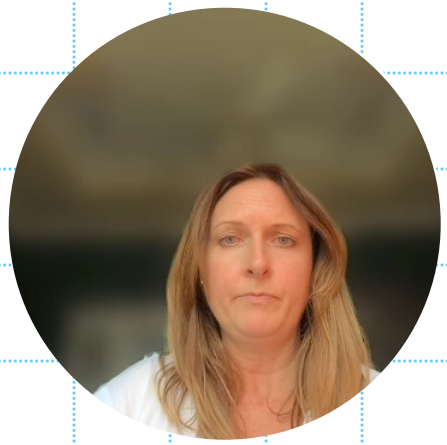

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THE END

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