

1.1-Vectors

Definitions:

vector:

addition of vectors:

scalar multiplication of vectors:

subtraction of vectors:

magnitude-

unit vector-

i and **j**-

Properties of Vectors: see p51

Examples:

Find a vector which represents the directed line segment from $A(3, 5)$ to $B(-4, -1)$. Sketch \overline{AB} and the vector in standard position.

Given $\mathbf{a} = \langle 2, 3 \rangle$ and $\mathbf{b} = -\mathbf{i} - 2\mathbf{j}$, find each of the following:
 $\mathbf{a} + \mathbf{b}$, $\mathbf{a} - \mathbf{b}$, $2\mathbf{a}$, $3\mathbf{a} + 4\mathbf{b}$, $|\mathbf{a}|$, and a unit vector in the direction of \mathbf{b} .

Two people are to pull ropes attached to a 50kg box (on a frictionless surface) as shown in the figure given in class. The person to the left of the box can exert a force of 6 N; the person on the right can exert a force of 10 N. Determine how fast the box accelerates and at what angle (from the vertical).