Vectors

Section I: Find a vector **a** with representation given by the directed segment . Draw and the equivalent representation starting at the origin.

1. A(1,3), B(4,4)
2. A(-3,4), B(-1,0)
3. A(3,-1), B(3,-3)
4. A(4,-1), B(1,2)
5. A(0,3,1), B(2,3,-1)
6. A(1,-2,0), B(1,-2,3)

Section II: Find the sum of the given vectors and illustrate geometrically.

1. <2,3>, <3,-4>
2. <-1,2>, <5,3>
3. <1,0,1>, <0,0,1>
4. <0,3,2>, <1,0,-3>

Section III: Find |**a**|, **a** + **b**, **a** – **b**, 2**a**, and 3**a** + 4**b**

1. **a =** <5,-12>, **b** = <-2,8>
2. **a =** <-1,2>, **b** = <4,3>
3. **a =** <2,-3,-6>, **b** = <1,1,4>
4. **a =** <3,2,-1>, **b** = <0,6,7>

Section IV. Find the dot product (**a ∙ b)**

1. **a =** <2,5>, **b** = <-3,1>
2. **a =** <-2,-8>, **b** = <6,-4>
3. **a =** <4,7,-1>, **b** = <-2,1,4>
4. **a =** <-1,-2,-3>, **b** = <2,8,-6>

Section V. Find the angle between the vectors.

1. **a =** <1,2>, **b** = <12,-5>
2. **a =** <3,1>, **b** = <2,4>
3. **a =** <1,2,2>, **b** = <3,4,0>
4. **a =** <6,0,2>, **b** = <5,3,-2>

