CLASS EXAMPLES

Example 1.

A certain fuel-efficient hybrid car gets gasoline mileage of 55.0 mpg.

a) If you are driving this car in Europe and want to compare its mileage with that of other European cars, express this mileage in km/lit. Use the conversion factor in Appendix E

b) If this car's gas tank holds 45 lit, how many tanks of gas will you ust to drive 1500 km?

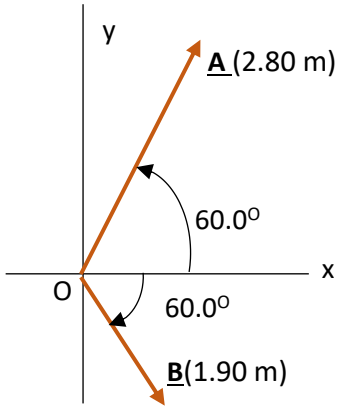
Example 2

Vector **A** is 2.80 cm long and is 60^O above the x axis in the first quadrant. Vector **B** is 1.90 cm long and is 60^O in the fourth quadrant. Use components to find magnitude and direction of

a) **A** + **B**

b) **A** - **B**

c) **B** - **A**



Example 3

a) If **A** . **B** = 0, does it necessarily follow that *A* = 0 or *B* = 0? Explain

b) If **A** x **B** = 0, does it necessarily follow that *A* = 0 or *B* = 0? Explain

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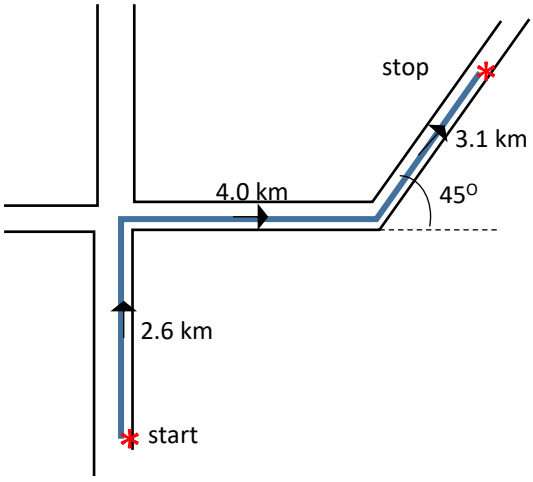
Example 4

A postal employee drives a delivery truck along the route shown.
Use method of components to determine
the magnitude and direction of the displacement.



Example 5

Using determinant find the vector product of the two vectors **A** and **B**:

A = 2.5 $\underline{\boldsymbol{i}}$ - 1.2 $\underline{\boldsymbol{j}}$ + 3.5 $\underline{\boldsymbol{k}}$

B =-1.5 $\underline{\boldsymbol{i}}$ + 1.1 $\underline{\boldsymbol{j}}$ - 2.5 $\underline{\boldsymbol{k}}$