

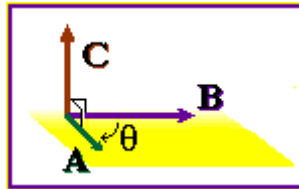
Answer on Question #59412, Physics / Mechanics | Relativity |

Which of the following physical quantities is an example of cross product?

- a) Work
- b) Moment
- c) Power
- d) Momentum

Solution:

The cross product, also called the vector product, is an operation on two vectors. The cross product of two vectors produces a third vector which is perpendicular to the plane in which the first two lie. That is, for the cross of two vectors, A and B, we place A and B so that their tails are at a common point. Then, their cross product, $A \times B$, gives a third vector, say C, whose tail is also at the same point as those of A and B. The vector C points in a direction perpendicular (or normal) to both A and B. The direction of C depends on the Right Hand Rule.



Moment of force (or torque) is example of the cross product of the lever-arm distance vector and the force vector, which tends to produce rotation:

$$\vec{\tau} = \vec{r} \times \vec{F}$$

Answer: b) Moment