

1. Determine the magnitude of the force produced by force F_B along the line from O to C.
2. Determine a unit vector perpendicular to the plane defined by points B, D, and E
3. Determine the combined moment about point O produced by forces F_B applied to point B and F_C applied to point C.
4. Determine the angle Force F_C makes with the line from O to C.

Coordinates (inch)

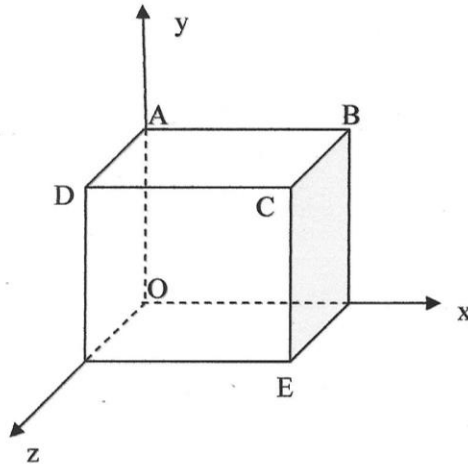
A (0,3,0)

B (4,3,0)

C (4,3,2)

D (0,3,2)

E (4,0,2)



Forces (lb)

$F_B = 3i + -4j + 7k$

$F_C = -4i + 5j + 1k$

5. A student, who is running to catch his bus, sees the bus start to pull away from the stop. He is 25 ft away from the stop and running at his top speed of 15 ft/s. If the bus accelerates at 6 ft/s^2 , can he catch the bus?
6. A 160 lb shot putter throws a 10 lb shot put off a 65 ft cliff. If the shot is released at a 35° angle and speed of 25 ft/s, find how far from the base of the cliff will the shot land?
7. The displacement of a particle varies with time as given by $x(t) = 10\cos(5t)$ inch. Determine the peak displacement, velocity and acceleration. For some time t , can the velocity be determined from the kinematic equation $v = at$ (justify your answer).