

1. Vector $A=10\text{ N}$ at an $\angle$ of -30° WRT $-y$; vector $B=20\text{ N}$ at an $\angle$ of $+36.87^\circ$ WRT $+x$. The vector $R=A-B$ has magnitude closest to: • 0 N • 15 N • 30 N • 45 N
2. The x-component of the resultant R (R_x) equals
 • -11 N • -21 N • 11 N • 21 N • NOTA/NMI
3. The y-component of the resultant R (R_y) equals
 • -20.66 N • 24.66 N • 3.33 N • 30 N • NOTA/NMI
4. A projectile is thrown vertically upwards from a height of 10 meters, with $v_{y,i}=19.6\text{ m/s}$. The maximum height it reaches is:
 • 10 m • 19.6 m • 29.6 m • 44.3 m • NOTA/NMI
5. A 2 kg mass has an initial velocity of 7.07 m/s at $t=0\text{ s}$ in the $+x$ direction. After 5 seconds, the mass has $|v|=7.01\text{ m/s}$ pointing in the $+y$ -direction. The average force acting on the mass is closest to: • 0 N • 1 N • 10 N • 4 N • 20 N
6. An object has initial acceleration $a=10\text{ m/s}^2$, making a -30° angle WRT $-y$, and an initial velocity $|v|=20\text{ m/s}$, at a $+36.87^\circ$ angle WRT $+x$. If it starts from the origin $[(x,y)=(0,0)]$, after 2 seconds, how far (in magnitude) has the mass moved in x ?
 • 14.66 m • 62 m • 42 m • 22 m • NOTA/NMI
7. after 2 seconds, how far has the mass moved in y ?
 • 41.3 m • 13.6 m • 28 m • 6.68 m • NOTA/NMI
8. If one waits long enough, the direction of the mass's velocity vector will be in which direction? • -30° WRT $-y$ • 66.87° WRT $-x$ • 6.87° WRT $+x$ • NOTA/NMI
9. Two forces act on a 5 kg mass. $A=10\text{ N}$ pointing at $+45^\circ$ WRT $+x$, and $B=10\text{ N}$ pointing at -45° degrees WRT $-y$. The magnitude of the net force is: • 0 N • 10 N • 14.14 N • 20 N • NOTA/NMI
10. Which of the following would increase the magnitude of the net force? • Reducing the magnitude of either A or B • Changing the direction of either A or B • Both of the first two answers • NOTA
11. High school students who run the 'wrong' way around 400-meter tracks in New Jersey consider themselves to be:
 • miscreants • iconoclasts • asserting their constitutional first amendment rights • recusants • mavericky