Vector/3 Laws Test Tip Sheet

Definitely study your **vector quiz**. Of course, study old H.W.s and notes. Try making flash cards. Study with a friend.

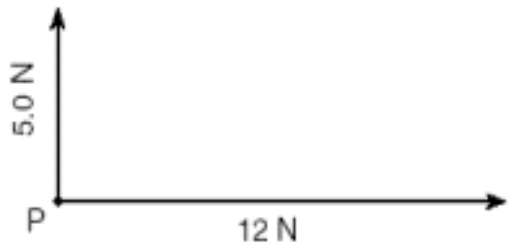
Practice questions online at Forces Review AND http://www.123physics.com/

1. Know how to find resultants when the angle between the forces are :

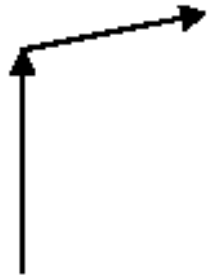
	ex) 3 N and 4 N	ex) 5 N and 4 N	ex) 6 N and 4 N
90 degrees			
180 degree			
0 degrees			
Range of possible resultants			

1a) Know how to draw resultants and equilibrants (tail to tail & head to tail)

Tail to Tail



Head to Tail



2. What angle between forces produces the greatest resultant? _____smallest resultant _____

3. Be able to find horizontal and vertical components. Ex) 6 N 35 degrees south of east. Draw it and use trigonometry to find Fx and Fy (horizontal and vertical components)

4. Draw a force so its vertical component is at its maximum possible value. Now change the angle so that is has the largest possible horizontal component.

Largest Vertical Component? Largest Horizontal component?

5) What happens to the size of each component when you change your force angle from 30 to 45 degrees?

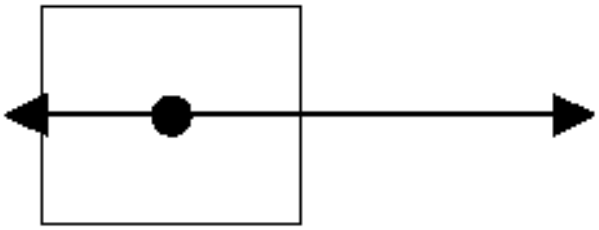
6. When the angle a vector makes from the horizontal increases, its horizontal

component of the force _____ and the vertical component _____

7. Could the forces 8 N, 4 N and 2N ever be in a state of equilibrium?

8. Know F=ma plugin questions. Also 2 step F=ma problem. First find Fnet (resultant), then use F=ma,

5 N West 10 N East

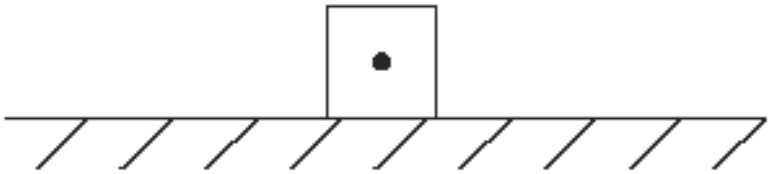


If a = 2 m/s^2, what is the mass of the box above?

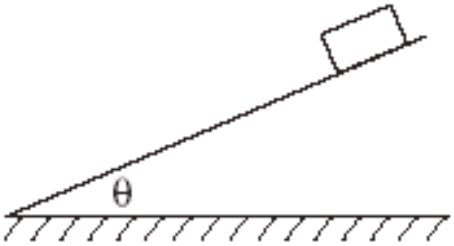
9. How much more inertia does a 10 kg mass have than a 2 Kg?.

10. What makes the world go 'round? (according to Newton, that is!!)

11. Carefully draw all the forces on a box on the ground and on an incline. Study all free body diagrams.



Box pulled to the right with constant velocity



Box at rest on an incline

12. There are about 3 to 4 third law questions. Know examples.

"When object A exerts a force on object B, _____

13. A HUGE St. Mary's hockey player checks a tiny Portledge hockey player.

Compare each players':

Third Law

- **Acceleration**

  Smaller Player - _____ - Larger Player - _____

- **Pain**

  Smaller Player - _____ Larger Player - _____

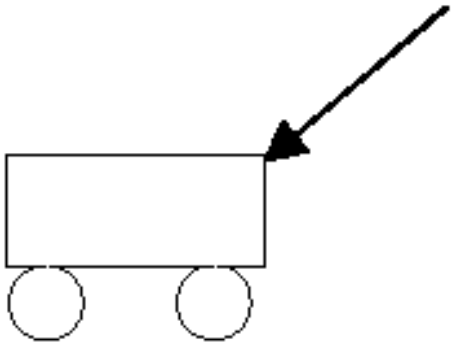
- **Potential Bodily damage !!!**

  Smaller Player - _____ Larger Player - _____

- **Force each exerts on other**

  Smaller Player - _____ Larger Player - _____

14. A man pushes a wagon with a force of 20 N and an angle of 60 degrees. Which component of this force actually is responsible for moving the wagon? Calculate this component. (Use trig.) [Perpendicular Components Animation]



Note: Picture is not drawn to scale