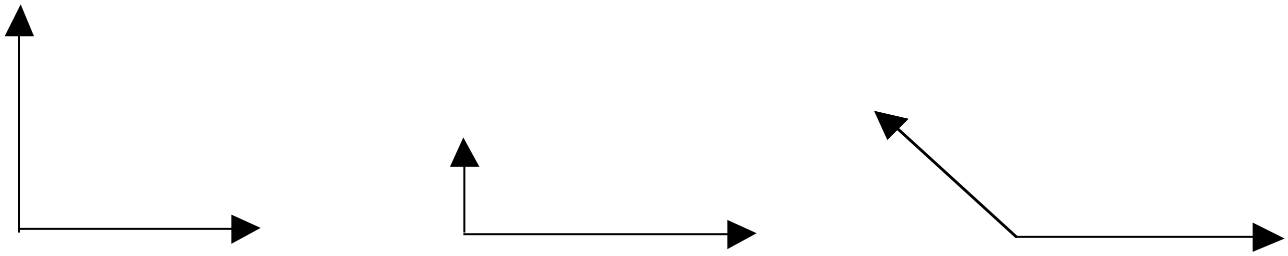
PHYSICS NAME ________________________

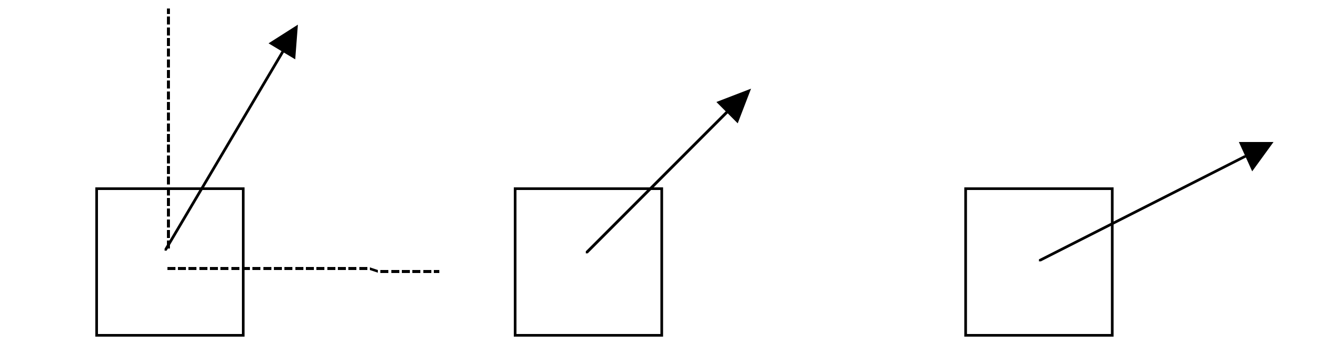
PROBLEMS: VECTORS DATE _____________PERIOD _____

1. Use the “parallelogram” method to graphically construct the resultant of the vectors shown. Use a scale of 1 cm : 5 N, measure each resultant with a ruler.



A) B) C)

2. A box is pulled to the right at various angles. Construct the horizontal & vertical components of the force vector for each case.



A) B) C)

3. A barrel rolls down a curved ramp as shown. The surface is most steep at A and least steep at C. Construct the components of the weight vector: one parallel to the surface at A, B, and C, and the other perpendicular to the surface at these points.

At which position is the component parallel to the ramp the greatest ?

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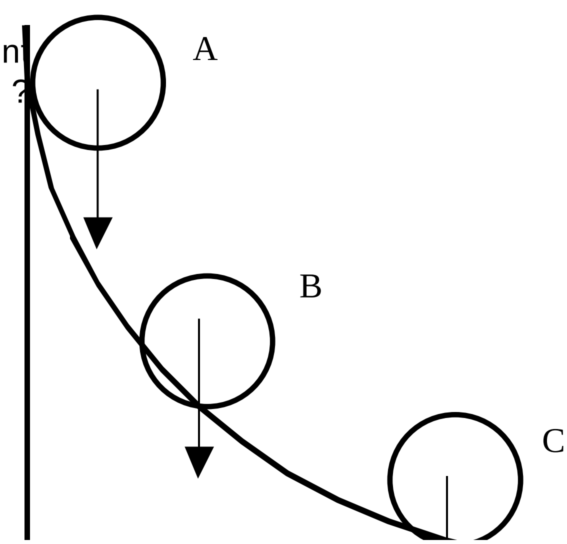
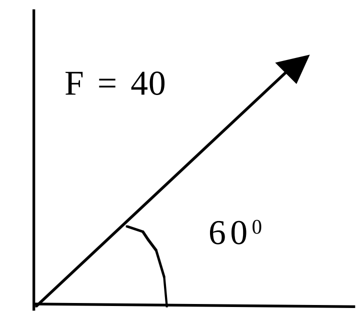
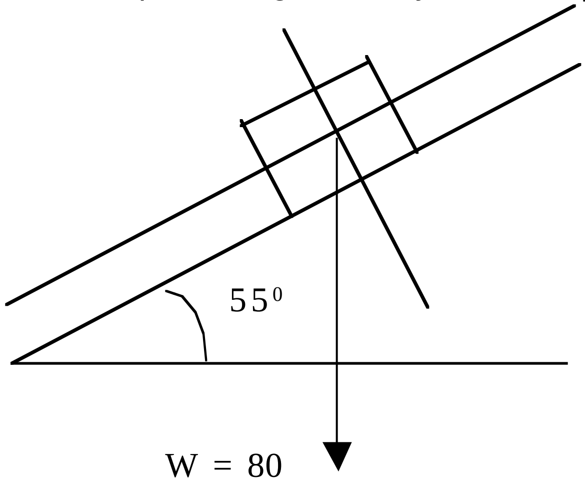


4. a) Neatly sketch and label the components F_x & F_y for the force F on the diagram below. b) Use trigonometry to find F_x & F_y. Show method clearly.



5. a) Neatly sketch and label the components F_{II} & $F_{\perp}$ for the weight on the diagram below. b) Use trigonometry to find F_{II} & $F_{\perp}$. Show method clearly.

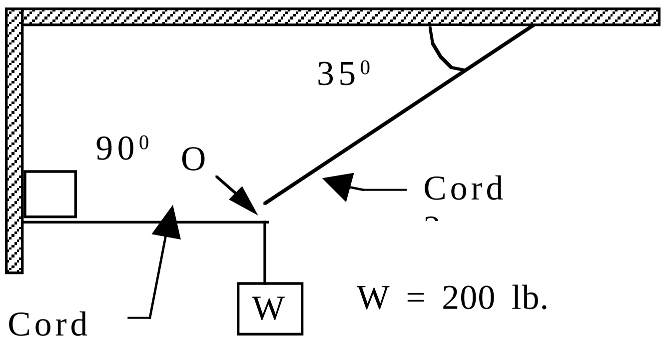


6. If the components of a velocity vector are $V_x = 32$ m/s and $V_y = 14$ m/s, what are the: a) magnitude and b) direction of V in polar form ? (measure direction ccw from the x axis)

PHYSICS NAME ___________________________
PROBLEMS: STATIC EQUILIBRIUM DATE ______________PERIOD _____

FOR EACH PROBLEM BELOW: a) Draw a force diagram showing all forces and all components clearly labeled. b) Use the sum of F_x =0 and the sum of F_y = 0. SHOW METHOD CLEARLY.

1. Find the force with which each cord pulls on the point where they are joined (point O).



2. Find the force exerted on point O by the cable AO and the strut BO. (Hint: The strut PUSHES on point O.)