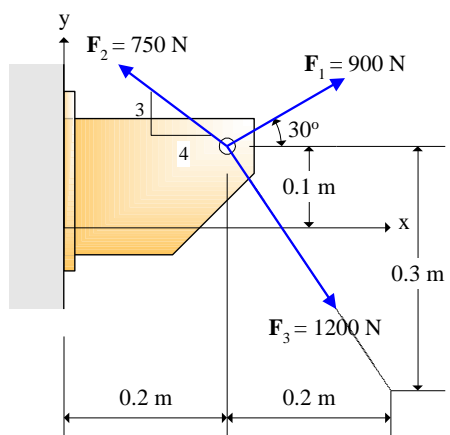
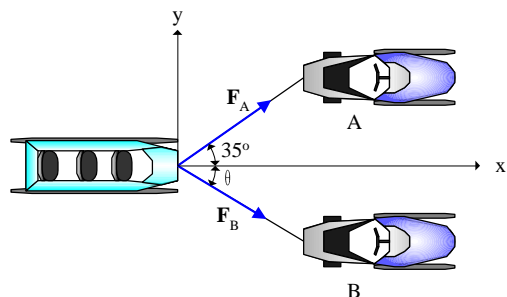
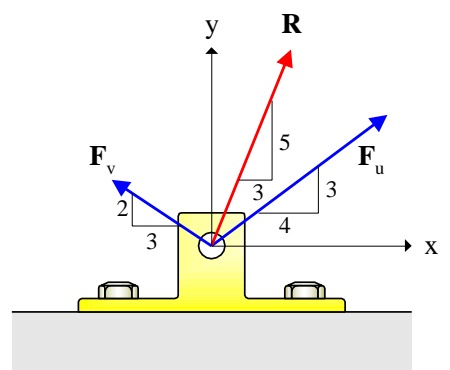


Engineering Mechanics Assignment #1

<p>1) Three forces act on a bracket as shown in the figure.</p> <p>a) Determine the magnitude and direction of the resultant \mathbf{R} using graphics.</p> <p>b) Determine the magnitude and direction of the resultant \mathbf{R}_1 of \mathbf{F}_1 and \mathbf{F}_2 using the parallelogram law.</p> <p>c) Determine the magnitude and direction of the resultant \mathbf{R} and \mathbf{F}_3 using the triangle law.</p>	
<p>2) If the resultant \mathbf{F}_R of the two forces acting on the sleigh is to be directed along the positive x-axis and have a magnitude of 20 kN, determine the angle θ of the cable attached to B such that the force \mathbf{F}_B in this cable is minimum. What is the magnitude of the force in each cable for this situation?</p>	
<p>3) Two forces \mathbf{F}_u and \mathbf{F}_v are applied to the bracket as shown in the figure. If the resultant \mathbf{R} of the two forces has a magnitude of 750 N and its direction as shown in the figure, determine the magnitudes of the forces \mathbf{F}_u and \mathbf{F}_v.</p>	
<p>BONUS</p> <p>4) Three forces act on a bracket as shown in the figure. Determine the magnitude and direction of the resultant of the three forces using</p> <p>a) trigonometric rules, and</p> <p>b) the graphical solution.</p>	