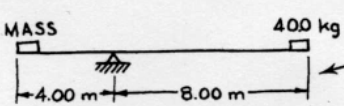


Figure 3.1

	<p>8-26-XX</p> <p>Date due</p>	<p>F R E 155</p> <p>PROBS. 5.1, 5.4, 5.9</p> <p>Course no.</p>	<p>DOE, JOHN B.</p> <p>164238</p> <p>Name</p>	<p>Sheet no.</p> <p>1</p>	<p>3</p>	
<p>Binding Margin - Do Not Use</p>	<p style="text-align: center;">PROBLEM 5.1</p> <p style="text-align: center;">CALCULATE THE MASS NECESSARY TO BALANCE THE BEAM SHOWN.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="border: 1px solid black; padding: 5px; font-size: small;"> Sketch showing known data and unknown quantity </div> </div> <p style="margin-top: 10px;">THEORY</p> <p style="margin-left: 20px;">FOR AN OBJECT IN STATIC EQUILIBRIUM, $\sum M_o = 0$ WHERE M_o IS THE MOMENT PRODUCED BY EACH FORCE ABOUT THE PIVOT O.</p> <p style="margin-left: 20px;">ASSUMPTION</p> <p style="margin-left: 20px;">THE MASS OF THE BEAM IS NEGLIGIBLE.</p> <p style="margin-left: 20px;">SOLUTION</p> <p style="margin-left: 20px;">SUMMING MOMENTS ABOUT O, CCW POSITIVE (LET $g =$ ACCEL. OF GRAVITY)</p> $\sum M_o = (\text{MASS})g(4.00\text{ m}) - (40.0\text{ kg})(g)(8.00\text{ m}) = 0$ <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; font-size: x-small;">Step-by-step solution</div> <div style="text-align: center;"> $\text{MASS} = \frac{(40.0\text{ kg})(8.00\text{ m})}{(4.00\text{ m})} = \underline{\underline{80.0\text{ kg}}}$ </div> <div style="border: 1px solid black; padding: 5px; font-size: x-small;">80.0 kg</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; font-size: x-small;">Separate problems</div> <div style="border: 1px solid black; padding: 5px; font-size: x-small;">Double underline answer with units</div> </div>					<p>Right Margin - Do Not Use</p>
<p style="text-align: center;">PROBLEM 5.4</p> <p style="text-align: center;">SOLVE THE FOLLOWING EQUATION FOR S: $S^2 + 5S + 6 = 0$</p> <p style="margin-left: 20px;">THEORY</p> <p style="margin-left: 20px;">APPLY QUADRATIC FORMULA.</p> $S = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad \text{WHERE } as^2 + bs + c = 0$ <p style="margin-left: 20px;">SOLUTION</p> $s = \frac{-5 \pm \sqrt{5^2 - 4(1)(6)}}{2(1)} = \frac{-5 \pm \sqrt{25 - 24}}{2} = \frac{-5 \pm 1}{2} = -3, -2$ $\underline{\underline{s = -3, s = -2}}$ <div style="display: flex; justify-content: center; align-items: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; font-size: x-small;">In this example, no assumptions or diagram is needed</div> <div style="margin-left: 20px; border: 1px solid black; padding: 5px; font-size: x-small;"> $s = -3$ $s = -2$ </div> </div>						