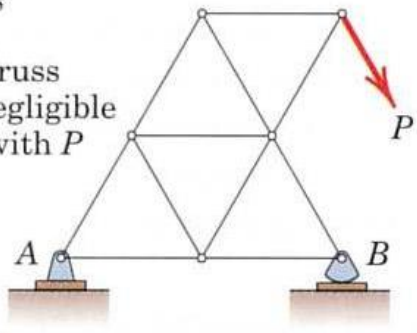
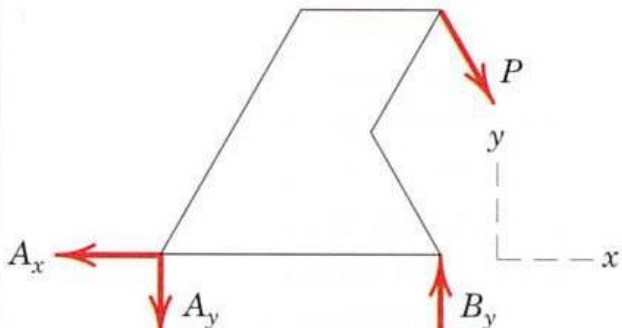
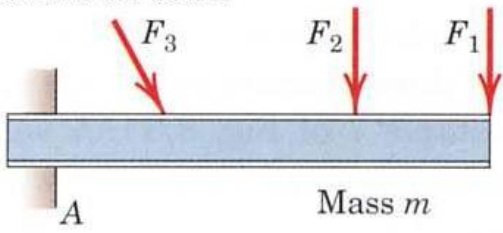
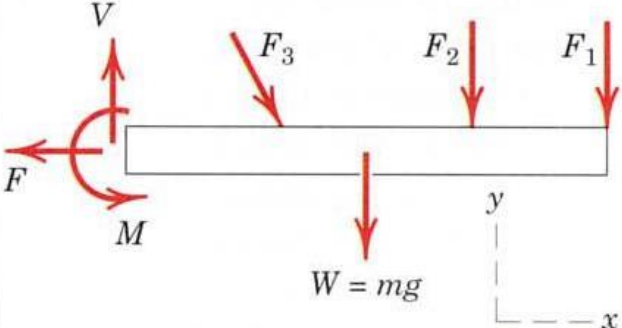
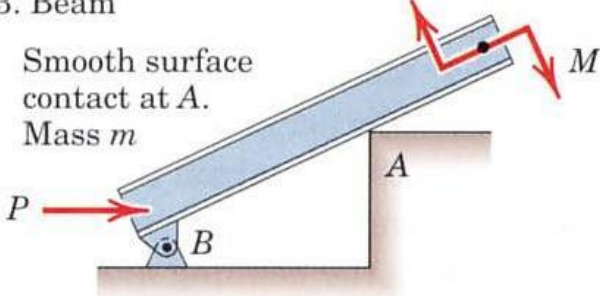
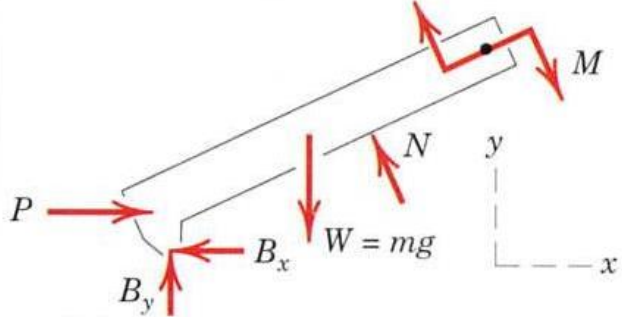
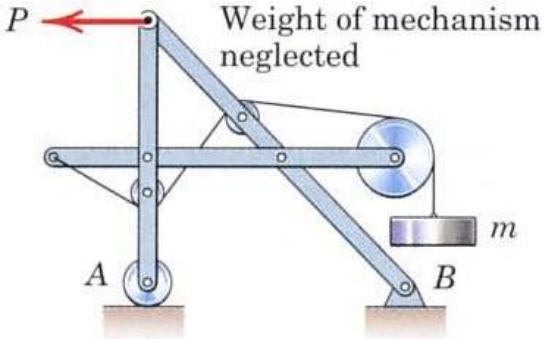
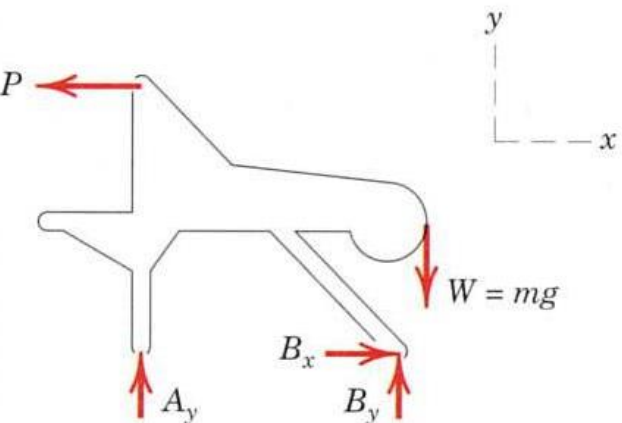
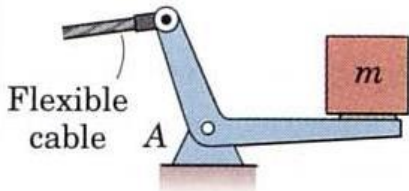
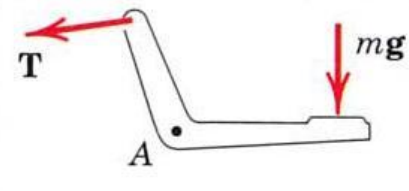
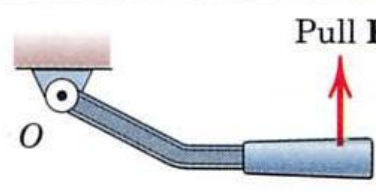
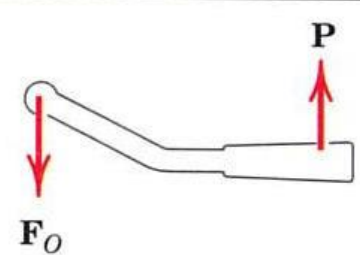
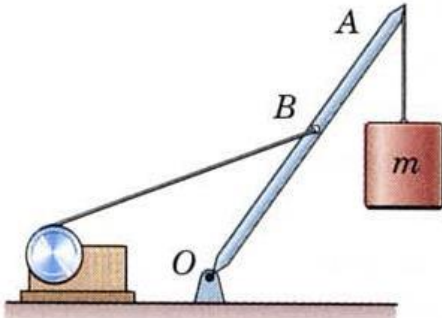
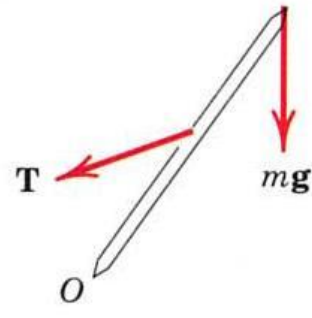
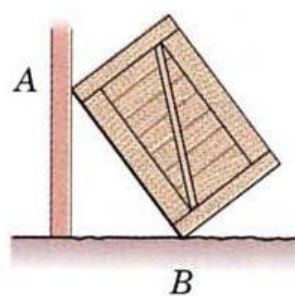
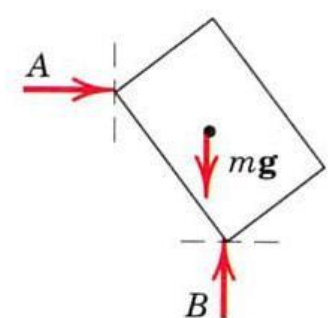
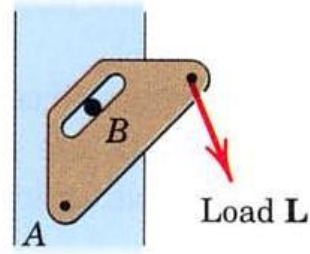
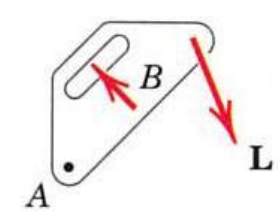


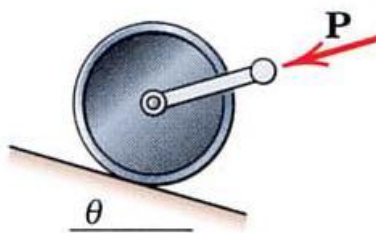
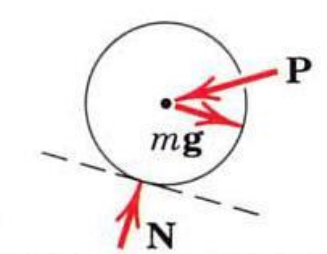
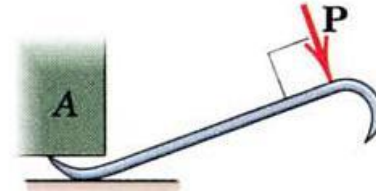
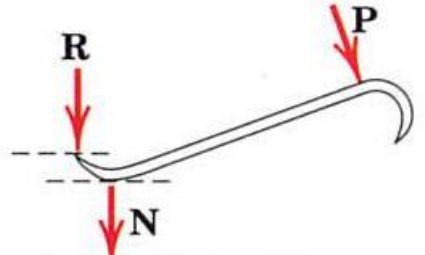
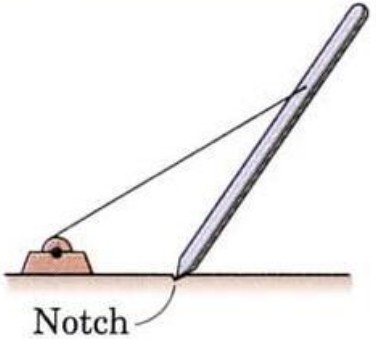
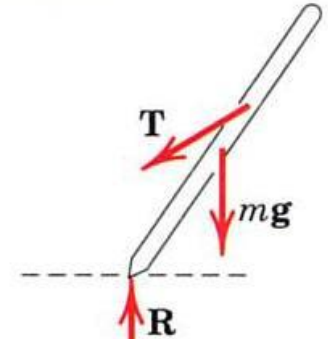
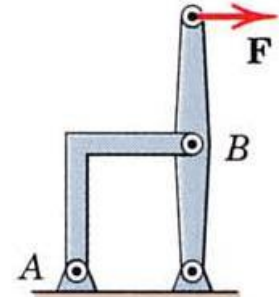
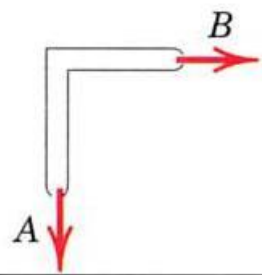
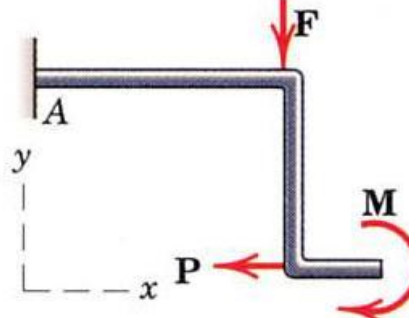
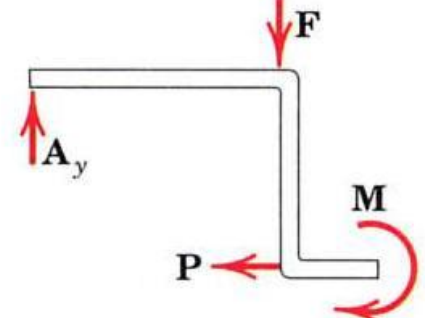
امثلة متنوعة في موضوع الاتزان:

Mechanical System	Free-Body Diagram of Isolated Body
<p>1. Plane truss</p> <p>Weight of truss assumed negligible compared with P</p> 	
<p>2. Cantilever beam</p> 	
<p>3. Beam</p> <p>Smooth surface contact at A.</p> <p>Mass m</p> 	
<p>4. Rigid system of interconnected bodies analyzed as a single unit</p> <p>Weight of mechanism neglected</p> 	

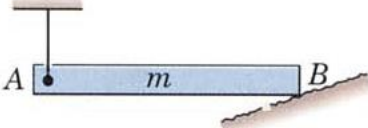
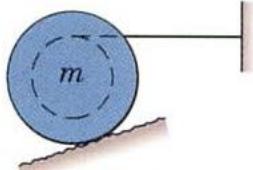
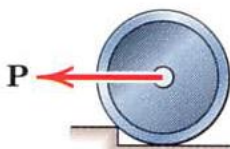
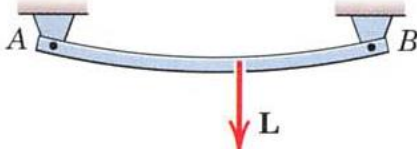
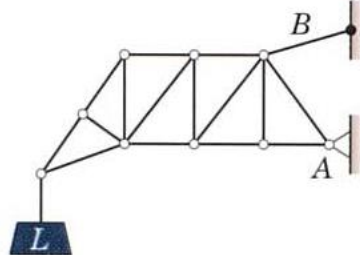
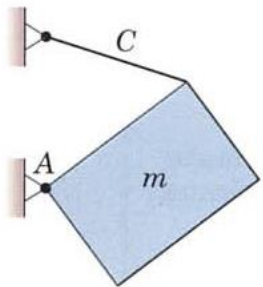
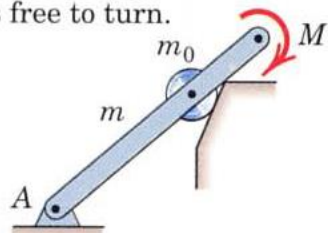
اكمل النقص في مخطط الجسم الحر (FBD) للاشكال التالية:

	Body	Incomplete FBD
1. Bell crank supporting mass m with pin support at A .		
2. Control lever applying torque to shaft at O .		
3. Boom OA , of negligible mass compared with mass m . Boom hinged at O and supported by hoisting cable at B .		
4. Uniform crate of mass m leaning against smooth vertical wall and supported on a rough horizontal surface.		
5. Loaded bracket supported by pin connection at A and fixed pin in smooth slot at B .		

حدد الأخطاء الموجودة في مخطط الجسم الحر (FBD) للشكال التالية

	Body	Wrong or Incomplete FBD
1. Lawn roller of mass m being pushed up incline θ .		
2. Prybar lifting body A having smooth horizontal surface. Bar rests on horizontal rough surface.		
3. Uniform pole of mass m being hoisted into position by winch. Horizontal supporting surface notched to prevent slipping of pole.		
4. Supporting angle bracket for frame; Pin joints.		
5. Bent rod welded to support at A and subjected to two forces and couple.		

ارسم مخطط الجسم الحر (FBD) للمسائل التالية:

<p>1. Uniform horizontal bar of mass m suspended by vertical cable at A and supported by rough inclined surface at B.</p> 	<p>5. Uniform grooved wheel of mass m supported by a rough surface and by action of horizontal cable.</p> 
<p>2. Wheel of mass m on verge of being rolled over curb by pull P.</p> 	<p>6. Bar, initially horizontal but deflected under load L. Pinned to rigid support at each end.</p> 
<p>3. Loaded truss supported by pin joint at A and by cable at B.</p> 	<p>7. Uniform heavy plate of mass m supported in vertical plane by cable C and hinge A.</p> 
<p>4. Uniform bar of mass m and roller of mass m_0 taken together. Subjected to couple M and supported as shown. Roller is free to turn.</p> 	<p>8. Entire frame, pulleys, and contacting cable to be isolated as a single unit.</p> 