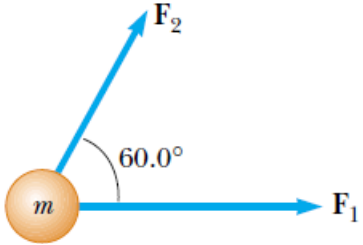
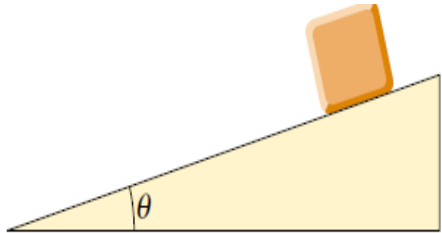
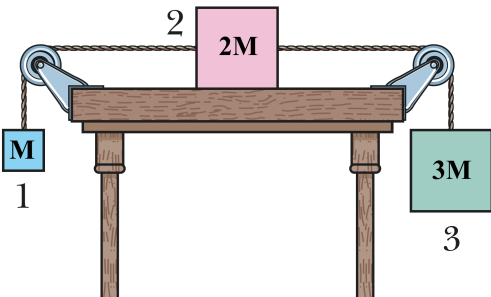


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Take $g = 9.8 \text{ ms}^{-2}$ wherever needed

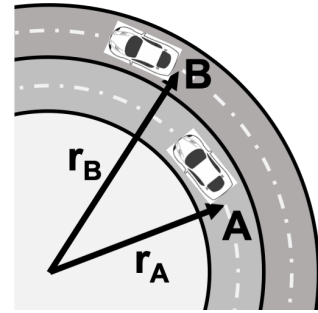
Q	Multiple choice questions
1	<p>A student whose weight is 600 N is standing on the ground. The force the ground exerts on him is:</p> <p>A) More than 600 N B) Less than 600 N C) Equal to 600 N D) None of these</p>
2	<p>As shown in the figure, two forces act on an 8 kg mass. If $F_1 = 18 \text{ N}$ and $F_2 = 12 \text{ N}$, the acceleration magnitude of the mass is:</p>  <p>A) 13.04 m/s^2 B) 26.15 m/s^2 C) 3.26 m/s^2 D) 6.52 m/s^2</p>
3	<p>An elevator has a mass of 1200 kg. It accelerates downward at 4 m/s^2. The force T exerted by the cable on the elevator is:</p> <p>A) 16500 N B) 6960 N C) 4140 N D) 1740 N</p>
4	<p>A 4 kg block, as in the figure, starts from rest at the top of a rough incline ($\theta = 36^\circ$). If the frictional force acting on the block is 10 N, the coefficient of kinetic friction between the block and the plane is:</p>  <p>A) 0.315 B) 0.631 C) 0.945 D) 0.158</p>
5	<p>When the three blocks, as in Figure, are released from rest, they accelerate with a magnitude of 0.5 m/s^2. Block 1 has mass M, block 2 has 2M, and block 3 has 3M. What is the coefficient of kinetic friction between block 2 and the table?</p>  <p>A) 0.18 B) 0.84 C) 0.37 D) 0.25</p>

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6

A split curved highway has a number of curved lanes for traffic in one direction (طريق سريع منحنى مقسم الى عدد من المسارات المنحنية لمرور السيارات في اتجاه واحد). The radius for the inside of the curve is half the radius for the outside. One car, car **A**, travels on the inside while another car of equal mass, car **B**, travels at equal speed on the outside of the curve. Which statement about resultant forces on the cars is correct:



A) The force on **A** is half the force on **B**

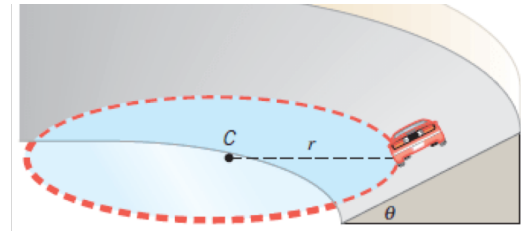
B) The force on **B** is four times the force on **A**

C) The force on **A** is four times the force on **B**

D) The force on **B** is half the force on **A**

7

A car moving at speed of **15 m/s** negotiates a frictionless curved road. Such a ramp is usually banked; this means the roadway is tilted toward the inside of the curve. Suppose the radius of the curve is **50 m**. At what angle should the curve be banked?



A) **24.7°**

B) 11.5°

C) 28.6°

D) 15.7°

8

Two students lift the same heavy box to the same height using the same vertical path but with different time periods. Assuming the box initial and final speed are zero in each case, the student with the longer time period did less:

A) work

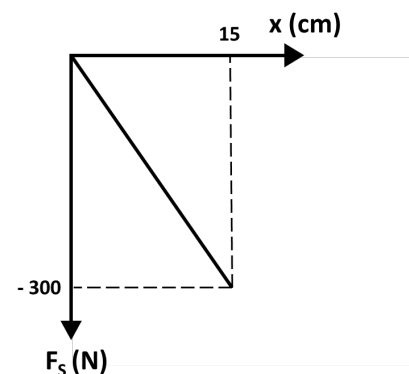
B) force

C) **power**

D) displacement

9

A spring is stretched to **15 cm**; the spring's force and displacement are plotted as shown in the next graph. What is the work done by the spring?



A) 45 J

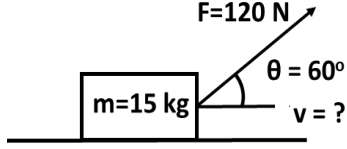
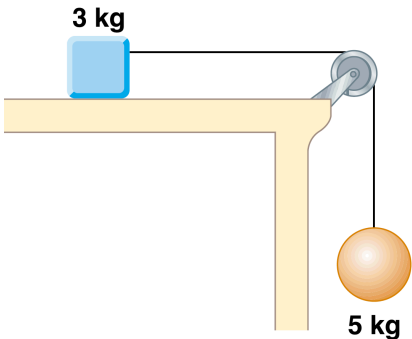
B) **-22.5 J**

C) 22.5 J

D) -45 J

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10	<p>A car speed is 30 m/s. If it brakes and slides a distance <i>d</i> to stop, what is <i>d</i>? (the kinetic coefficient of friction between tiers and pavement is 0.5)</p> <p>A) 129 m B) 38 m C) 65 m D) 92 m</p>
11	<p>A pearson is pulling a box with force <i>F</i> = 120 N, as shown in the figure. If the pearson's power is 200 W at a specific instant, what is the speed <i>v</i> of the box at this instant?</p>  <p>A) 3.3 m/s B) 4.5 m/s C) 5.1 m/s D) 2.7 m/s</p>
12	<p>A 1200 kg car moving on a horizontal surface has speed <i>v</i> = 36 km/h, when it strikes a horizontal spring and is brought to rest in a distance of 2 m. What is the spring constant <i>k</i>?</p> <p>A) 32 kN/m B) 31 kN/m C) 35 kN/m D) 30 kN/m</p>
13	<p>A spring is stretched from its equilibrium position by 4 cm and has a potential energy equal to 100 J. If we stretch the same spring by 2 cm from its equilibrium position how much is its potential energy?</p> <p>A) 200 J B) 25 J C) 16 J D) 50 J</p>
14	<p>The potential energy is the energy an object has due to:</p> <p>A) its position or condition B) its velocity C) its composition D) its atomic structure</p>
15	<p>The coefficient of friction between the 3 kg block and the surface, as in the figure, is 0.4. The system starts from rest. What is the speed of the 5 kg ball when it has fallen 1.50 m?</p>  <p>A) 5.22 m/s B) 8.90 m/s C) 3.74 m/s D) 1.18 m/s</p>

The End