

- 14 During an interval of time, fuel supplies energy  $X$  to a car.

Some of this energy is converted into kinetic energy as the car accelerates.

The rest of the energy  $Y$  is lost as thermal energy.

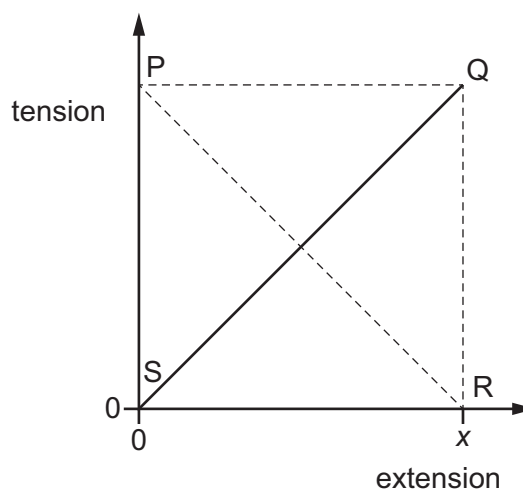
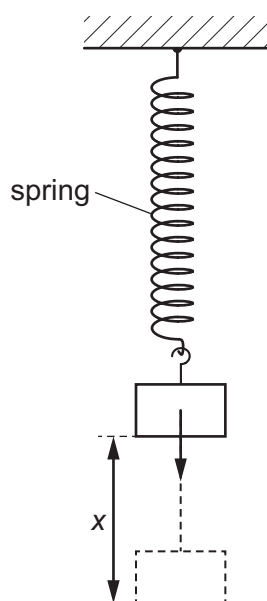
What is the efficiency of the car?

- A  $\frac{X}{X-Y}$       B  $\frac{Y}{X-Y}$       C  $\frac{X-Y}{X}$       D  $\frac{X-Y}{Y}$

- 15 In which situation is work done on an object?

- A The object slides with a constant velocity along a horizontal frictionless surface in a vacuum.  
B A person holds the object at arm's length and at a fixed height above the ground.  
C A person pushes the object up a frictionless ramp.  
D The stationary object floats partially submerged in water.

- 16 A spring is attached at one end to a fixed point. A mass is then hung from the other end of the spring. The spring has extension  $x$  when the system is in equilibrium.



The variation of the tension in the spring with its extension is shown on the graph.

Which statement is correct?

- A Area SPR represents the energy stored in the spring which cannot be recovered.  
B Area SPQR represents the energy stored in the spring which can be recovered.  
C Area SPQ represents the loss of gravitational potential energy of the mass due to the extension of the spring.  
D Area SQR represents the elastic potential energy stored in the spring.