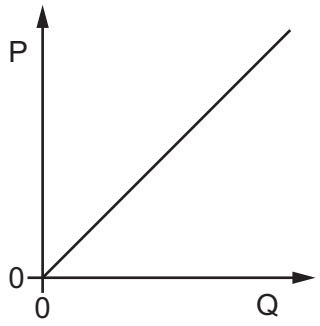
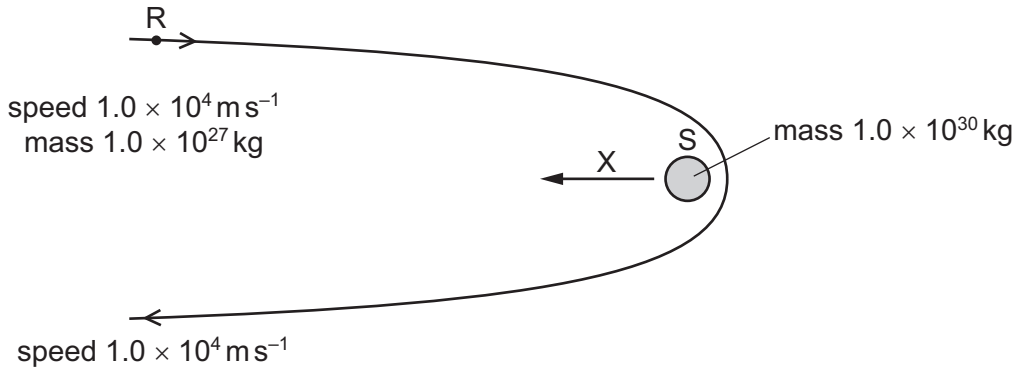
8 The graph shows how quantity P varies with quantity Q for an object falling in air for a long time in a uniform gravitational field.



What could be the identities of P and Q?

	P	Q
A	force of air resistance	acceleration
B	kinetic energy	time
C	potential energy	height
D	work done against air resistance	speed

9 A rock R of mass 1.0×10^{27} kg is a large distance from a star S and is travelling at a speed of $1.0 \times 10^{4}\,m\,s^{-1}$. The star has mass 1.0×10^{30} kg. The rock travels around the star on the path shown so that it reverses its direction of motion and, when finally again a large distance from the star, has the same speed as initially.



Which statement is correct?

A The change in the momentum of S is in the direction of arrow X.

B The change in the velocity of S is approximately $20\,m\,s^{-1}$.

C The magnitude of the change of momentum of R is 10^{3} times greater than the magnitude of the change of momentum of S.

D The momentum of R does not change.