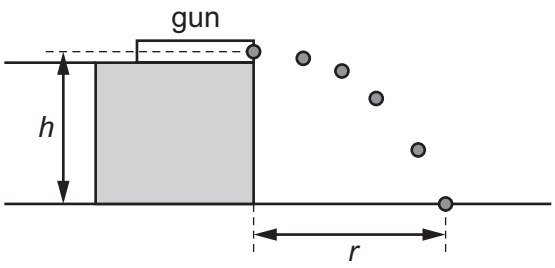
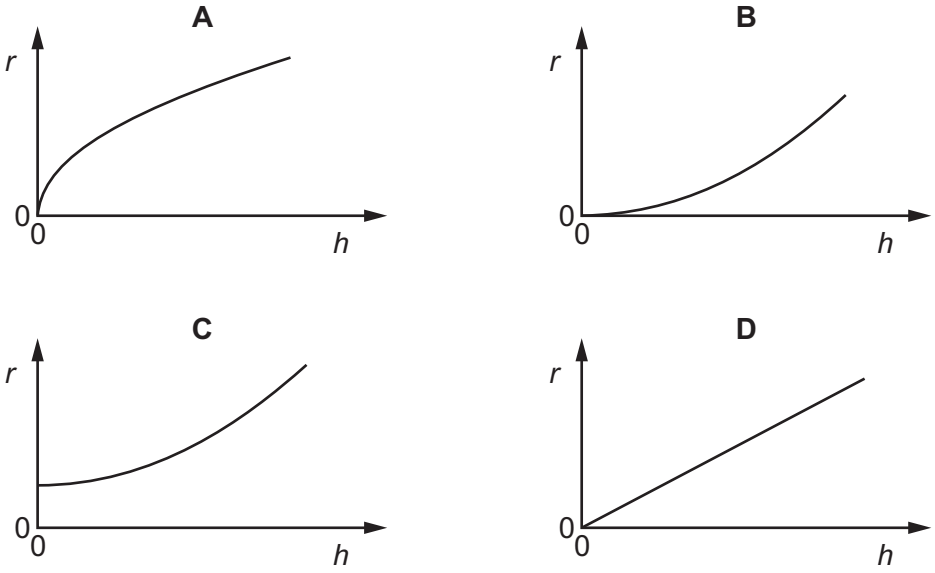
7 A student uses a spring gun to launch a steel ball with a constant horizontal velocity. He varies the height h of the gun and measures the horizontal displacement r of the ball when it hits the ground.



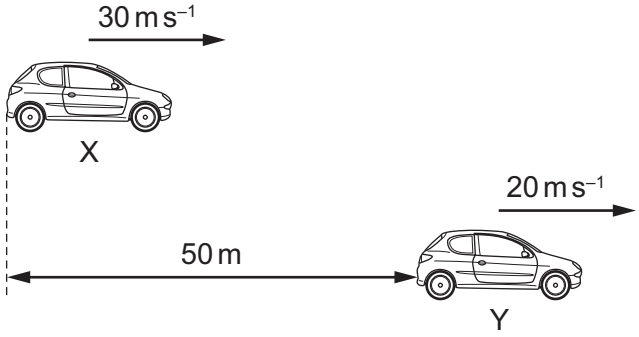
Which graph shows the variation with height h of the horizontal displacement r?



8 Two cars X and Y are positioned as shown at time $t = 0$.

They are travelling in the same direction.

X is 50 m behind Y and has a constant velocity of 30 m s^{-1}. Y has a constant velocity of 20 m s^{-1}.



What is the value of t when X is level with Y?

A 1.0 s **B** 1.7 s **C** 2.5 s **D** 5.0 s