

PQ 6b

SUVAT

Questions

Q1

A car travelling at 20ms^{-1} accelerates at 1.5ms^{-2} until it is travelling at 50ms^{-1} . What distance does it travel while doing this?

Q2

A ball is dropped off the top of a building and takes 3s to reach the ground. How high is the building?

Q3

A gun with a barrel of length 0.8m is fired and the bullet leaves the barrel at 500ms^{-1} . What was the acceleration of the bullet as it travelled along the barrel?

Q4

A rocket in space is travelling at 100ms^{-1} when it starts to slow down at 2ms^{-2} until it is travelling at 50ms^{-1} . How far does it travel while doing this?

Q5

A car travelling at 20ms^{-1} accelerates at 1.5ms^{-2} until it is travelling at 50ms^{-1} . What distance does it travel while doing this?

Q6

A ball is dropped off the top of a building and takes 3s to reach the ground. How high is the building?

Q7

A gun with a barrel of length 0.8m is fired and the bullet leaves the barrel at 500ms^{-1} . What was the acceleration of the bullet as it travelled along the barrel?

Q8

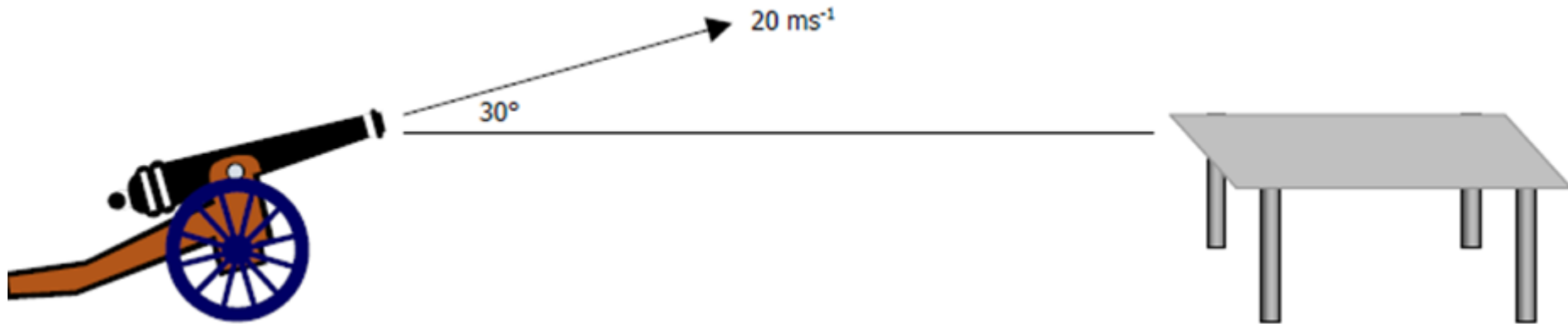
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Q9

A workman on the scaffolding outside one of the science classrooms drops a wrench. A physics student, bored with the lesson, times it as it falls past the classroom window. She found that it took 0.6s to fall past the 2m tall window. Calculate the spanner's **initial** velocity as it appears at the top of the window.

Q10

A human cannonball at a circus is fired from the cannon with a muzzle velocity of 20 ms^{-1} at 30° to the ground, and (hopefully) lands in a safety net that is at the same height as the mouth of the cannon.



- Calculate the horizontal and vertical components of the performer's velocity.
- How high above the net was he at his highest point?
- How far from the cannon should the net have been placed to safely catch the performer?
- In practice, this distance would have to be slightly shorter. Why?