Acceleration Questions for GCSE Physics

1. Define acceleration in words.

2. What is the unit for acceleration?

3. What does a negative acceleration mean?

4. A car increases its velocity from 0 m/s to 20 m/s in 5 seconds. What is its acceleration?

5. A bus goes from 15 m/s to 25 m/s in 20 seconds. Find the acceleration.

6. A runner slows down from 8 m/s to 2 m/s in 3 seconds. Calculate the acceleration.

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7. A cyclist decelerates from 12 m/s to 6 m/s in 4 seconds. What is the acceleration?

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8. If a train has an acceleration of 0.5 m/s² for 30 seconds, what change in velocity does it experience?

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9. A motorbike goes from 5 m/s to 25 m/s in 10 s. Calculate the acceleration.

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10. A lorry accelerates at 0.8 m/s² from rest for 12 seconds. What is its final velocity?

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11. A plane accelerates from rest to 75 m/s with an acceleration of 2.5 m/s². Calculate the minimum runway length needed.

12. A train starts from rest and accelerates at 1.2 m/s² until it reaches 24 m/s. How far does it travel in this time?

13. A cyclist accelerates at 0.6 m/s² for 25 seconds. What is their final speed if they started from 2m/s?

14. A car's acceleration is 2 m/s². Its final speed is 26 m/s after 12 seconds. What was its initial speed?

15. A motorbike has an initial speed of 12 m/s and accelerates at 1.5 m/s² over 100 m. What is its final velocity?

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16. A car accelerates at 3 m/s² from rest for 10 seconds. Find (a) the final velocity, and (b) the distance travelled.

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17. An object accelerates uniformly from 4 m/s to 16 m/s in 6 seconds. Find the distance travelled.

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18. A cyclist accelerates from 5 m/s to 15 m/s in 8 seconds. Find the distance travelled.

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19. A plane accelerates from 0 m/s to 80 m/s in 20 seconds. How far does it travel during this time?

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20. A ball is thrown upwards at 20 m/s. Taking acceleration due to gravity as –9.8 m/s², how high does it travel before stopping?

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