

Accelerated motion

1. A car takes 8s to go from 13m/s to rest. Lets say we want to calculate the acceleration of this car.
 - a) Write down what variables we have and what variable we are looking for
 - b) What do you expect the **sign** of the answer to be?
 - c) Solve the acceleration

2. A car accelerates from 10m/s to 30m/s while travelling 500m.
 - a) What is the car's acceleration?
 - b) The car starts slowing down to a stop with an acceleration of -3.2m/s^2 . How long did this take?

3. A student throws a ball upwards from the ground with an initial velocity of 12m/s.
 - a) How high does the ball go?
 - b) How long does the ball take to hit the ground (from the start of the throw)?

4. A student throws a ball off a 12m building upwards with an initial velocity of 8m/s and the ball eventually lands on the ground.
 - a) What is the displacement of the ball?
 - b) How long does it take for the ball to hit the ground?

5. A student throws a ball off a 15m building **downwards** with an initial velocity of 4m/s. How long does it take for the ball to hit the ground?

6. A student throws a ball from a 20m building upwards with an initial velocity of 14m/s.
 - a) How high above the ground does the ball go?
 - b) With what velocity does the ball hit the ground with?

7. A student throws a ball upwards. The ball reaches a maximum height of 33m.
 - a) With what velocity did the student throw the ball at?
 - b) At the maximum height, what is the acceleration of the ball?

