1. Create a new class called GravityCalculator.
2. Copy and paste the following initial version:

**class** GravityCalculator

**{**

**public static void** main**(**String**[]** arguments**)**

**{**

**double** gravity **=-**9.81**;** // Earth's gravity in m/s^2

**double** initialVelocity **=** 0.0**;**

**double** fallingTime **=** 10.0**;**

**double** initialPosition **=** 0.0**;**

**double** finalPosition **=** 0.0**;**

System**.**out**.**println**(**"The object's position after " **+** fallingTime **+**

" seconds is " **+** finalPosition **+** " m."**);**

**}**

**}**

3. Run it in Eclipse (Run → Run As → Java Application).

What is the output of the unmodified program? Include this as a comment in the source code of your submission.

1. Modify the example program to compute the position of an object after falling for 10 seconds, outputting the position in meters. The formula in Math notation is:

x(t) = 0.5 × at2 + vit + xi

**Variable Meaning Value**

|  |  |
| --- | --- |
| a | Acceleration (m/s2) -9.81 |

|  |  |  |
| --- | --- | --- |
| t | Time (s) | 10 |

|  |  |
| --- | --- |
| vi | Initial velocity (m/s) 0 |

|  |  |  |
| --- | --- | --- |
| xi | Initial position | 0 |

|  |  |  |  |
| --- | --- | --- | --- |
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