

Notes on Section 2.4.4

Falling Objects with Air Resistance

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Suppose that an object of mass m falls under gravity near the surface of the earth with air resistance proportional to its velocity. Then from we have

where $v(t)$ and The equation is equivalent to

which is a equation. Solving it, you should find that v is a solution if and only if

for some number c and all $t \geq 0$. then

The altitude $y(t)$ at time t is related to the velocity by

So

Suggested Problem. Problem 1 in Exercises 2.4.4 on page 51 of the text.