

MEMO

TO: Your Project Team

FROM: Rob Eby, Senior Consultant for EB Enterprises

Examples of work from low to high quality: **NOTICE there is no grade attached to any of these, so high quality might mean B or it might mean A if there are no mistakes in the entire report.** ** Problem: Mr Eby, I have been told by someone else that the total amount of money left in his bank account is modeled either by $f(t) = -3t + 21$ or by $g(t) = -t^2 + 7t + 18$. Please tell me when it will run out.

Mr. E. Scrooge.

** NOTE from Professor Eby: t is years since 2000, (and we pretend this is the year 1999)

Lowest quality $0 = -3t + 21$ means $t = 7$

$0 = -t^2 + 7t + 18$ means $t = 9$

Not quite as low quality Here is your answer:

$0 = -3t + 21$ means $t = 7$

$0 = -t^2 + 7t + 18$ means $t = 9$

So either 2007 or 2009, depending upon which model is correct.

Decent quality Dear Mr. E. Scrooge, if the first model is correct, then $0 = -3t + 21$ means $t = 7$ or 2007.

If instead it is the second model that is correct, then $0 = -t^2 + 7t + 18$ means $t = 9$ or $t = -2$. -2 would be 2 years before 2000, so we take the answer $t = 9$, which means 2009.

To be safe we suggest planning for it to run out in 2007.

Higher quality Dear Mr. E. Scrooge. The answer depends upon which model is correct. In both cases, since both $f(x)$ and $g(x)$ are the amount of money you have left, we need to find when each will equal zero.

For $f(t)$ that means we need to solve $0 = -3t + 21$. When we solve it we get $t = 7$. So 7 years after 2000, or 2007.

For $g(t)$ that means we need to solve $0 = -t^2 + 7t + 18$. When we solve this, we get two answers, $t = -2$ and $t = 9$. The $t = -2$ would mean two years BEFORE 2000, or 1998, so we will only worry about the other answer. That is $t = 9$, so 9 years after 2000, or 2009.

So either 2007 or 2009, depending upon which model is correct. To be safe, we suggest you plan on 2007 so that you are prepared.