

Simple vs Compound Interest

In about 2500BC Pharaoh Cheops had his Great Pyramid constructed in Egypt. This construction is a testament to the capabilities of the Egyptians, and for over 3,800 years it was the tallest man made structure on Earth, at a height of 146m. Each side of the base is 230m.

When the construction had been completed, the Pharaoh gave each worker a single gold coin, equivalent to one penny, as a thank you gift. Most of the workers spent their penny as this was a generous sum to them at the time. However, two workers decided to invest their pennies. They decided to do this because Pharaoh's in Ancient Egypt were considered to be Gods, and they did not want to frivolously waste this gift from a god.

We shall call these two men Adam and Bob. Having decided to invest the money, they went to the local Money Lender, who had two investment plans that he offered:

1. Simple interest, at 100%
2. Compound interest, at 1%

Adam saw these two options, and thought that the first option was significantly better, as it is 100% interest, so he signed up for investment scheme 1.

Bob decided that he wasn't ever going to spend the money anyway, so it did not matter if it only earned 1%, and chose investment scheme 2.

How long did it take for Adam's Investment to become worth 2 pence? How about 3 pence? And 4 pence?

How long did it take for Bob's Investment to become worth 2 pence? How about 3 pence? And 4 pence?

What do you notice about how quickly the accounts are getting bigger?

Eventually the money lender passed away, and his company got passed on to his children, who in turn passed the company and records down through the generations. At some point during medieval times, the company was taken over by a 'bank' in Florence, and sometime in the 20th Century, HSBC acquired the account. Around the time of the Millennium, HSBC discovered the original documents in their archives in Geneva. They decided to have the hieroglyphs translated, so they could find out about the oldest account the bank held. Having decoded the details, HSBC decided they wanted to track down any descendants of Adam and Bob, and honour the account by presenting them with a solid gold replica of the Great Pyramid, scaled such that the weight of the gold was worth exactly how much the account was now worth.

How much was Adam's account worth in the year 2000?

Given the value of gold at the time, the replica that Adam's descendants received had a base size of 9mm, and was approximately 5.7mm tall.

How much was Bob's account worth in the year 2000?

Given that at the time gold cost £6.25 per gram, we can calculate that Bob's account is worth 900 life size replicas of the Great Pyramid, each made of solid gold!

In what year does Bob's account become worth more than Adam's account?