A Sinking Fund is an annuity for which the amount of the payment is determined by a desired future value.

- The math will be the same, the difference is just in the thought process:
  - * did you start off knowing what you can afford in payments? (so future value or interest earned are things you may need to calculate)
  - * or do you know you need a particular future value? (so the amount of the payments is something you may need to calculate)
- With Sinking Funds, since we know the desired future value, we are often trying to work out the payment amount(s).
- We can work with sinkings funds with either an Ordinary Annuity or an Annuity Due.

1. Suppose a freshman has a goal to have $3,000 saved up when they graduate (in 3 years and 9 months) for a graduation trip. They find an account that pays 3.4% interest compounded monthly. They decide to make (equal) monthly deposits into this account every month. How much should each deposit be?

2. You’re just starting out with a new business and your friend (a graphic designer) offers to do all the graphic design work for the first 2 years for only $7,000. And since they are your friend they agree to collect the money at the end of the 2 years. To make sure you have they money saved you decide to start making payments each quarter (starting today) in an account that pays 5.77% interest compounded quarterly. How much should each deposit be?

3. The Town Council has to borrow 1.1 million dollars for 5 years for repairs after a natural disaster. The investors loan the Town Council the money at 6% interest, compounded annually. The Town won’t pay the investors until the end of the 5 years, but the deal requires the Town to set up a sinking fund and make semiannual deposits into the account to accumulate the full maturity value of the loan. The Town sets up an account at a local bank which offers them an interest rate of 4.9%. How much should each deposit be?

4. Thelma is 25 an hopes to retire in 50 years (at age 75). She sets the goal of having $1,000,000 in her retirement savings plan, and will have money automatically deducted from her paycheck twice a month and deposited into her retirement account. She assumes her retirement account will continue to average 8% interest. How much should each deposit be?

5. (Optional) Louis doesn’t start saving for her retirement until she’s 35. She also plans to retire at age 75 (in 40 years). She has the same $1,000,000 goal as Thelma, and will make twice-monthly deposits into a similar account where she also expects to earn 8% interest. How much should each of Louis’s deposits be?