1. Crosby was researching CD rates, and found the following information on CD’s from 2 different banks:

<table>
<thead>
<tr>
<th>Bank</th>
<th>Rate</th>
<th>Compounding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dax Bank</td>
<td>2.79%</td>
<td>Annually</td>
</tr>
<tr>
<td>Shepard Bank &amp; Trust</td>
<td>2.64%</td>
<td>Annually</td>
</tr>
</tbody>
</table>

Which is the better option for Crosby as a lender? why?

2. Crosby was also researching savings accounts, and found the following information on savings accounts.

<table>
<thead>
<tr>
<th>Bank</th>
<th>Rate</th>
<th>Compounding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jasmine Bank</td>
<td>0.91%</td>
<td>Monthly</td>
</tr>
<tr>
<td>Jabbar’s Trust</td>
<td>0.91%</td>
<td>Daily</td>
</tr>
</tbody>
</table>

Which is the better option for Crosby as a lender? why?

3. Haddie was researching interest rates on CD’s and she found the following 3 options:

<table>
<thead>
<tr>
<th>Bank</th>
<th>Rate</th>
<th>Compounding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braverman Bank</td>
<td>4.2%</td>
<td>Annually</td>
</tr>
<tr>
<td>Cornell Credit Union</td>
<td>4.1%</td>
<td>Weekly</td>
</tr>
<tr>
<td>Berkley Savings &amp; Loan</td>
<td>4.0%</td>
<td>Daily</td>
</tr>
</tbody>
</table>

Which is best for Haddie as a lender? why?

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**Effective Interest Rate**

The annually compounded rate which produces the same result as a given interest rate and compounding frequency is the *equivalent annually-compounded rate (EACR)* or the *effective interest rate*. The original interest rate is called the *nominal rate*.

**Finding Effective Interest Rate: Method 1**

To find the effective rate for a given nominal rate and compounding frequency, simply find the *FV* of $100 in 1 year using the nominal rate and compounding frequency. The effective interest rate (rounded to 2 decimal places) will be the same number as the amount of interest earned.
4. Find the effective interest rates for the 3 CD’s Haddie found:

<table>
<thead>
<tr>
<th>Bank</th>
<th>(nominal) Rate</th>
<th>Compounding</th>
<th>Eff. Int. Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braverman Bank</td>
<td>4.2%</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td>Cornell Credit Union</td>
<td>4.1%</td>
<td>Weekly</td>
<td></td>
</tr>
<tr>
<td>Berkley Savings &amp; Loan</td>
<td>4.0%</td>
<td>Daily</td>
<td></td>
</tr>
</tbody>
</table>

Which is best for Haddie as a lender? why?

---

**Notes on Effective Interest Rates**

- Truth In Lending Act requires that (most of the time) financial institutions must give out the effective interest rate for deposit accounts. (Sometimes they give nominal rate, sometimes they don’t)

- The effective interest rate goes by many other names
  - For Deposit Accounts:
    - * Effective Interest Rate
    - * Annual Percent Yield or Annualized Percent Yield (APY)
    - * Effective Rate
    - * Effective Yield
    - * Effective Annual Rate
    - * Annualized Yield
  - For Loans
    - * Annual Percentage Rate (APR).

- **Real World Hiccups**
  - Sometimes these rates given may take into account fees that must be paid on the account (so they won’t match what we calculated)
  - Sometimes nominal rates can vary, which complicates things.

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5. Refer to Question 4.

(a) What is the APY on the CD from Cornell Credit Union?
(b) What is the nominal rate on the CD from Cornell Credit Union?
(c) What is the effective interest rate on the CD from Cornell Credit Union?
Finding Effective Interest Rate: Method 2

Effective Interest Rate
Eff. Rate = \((1 + r/c)^c - 1\)

\(r\) = the nominal interest rate
\(c\) = the number of compounding per year

6. Find the APY for a savings account with 2.45% interest compounded daily using....

(a) The $100, 1-year method
(b) The Effective Rate Formula

7. The Sydney Bank offers a 4 year CD that compounds daily. They advertise that their APY is 3.08%. If Joel invests $10,000 in one of these CD’s, what will it be worth in 4 years?

8. Drew needs to take out a loan for college. He found the following offers:

<table>
<thead>
<tr>
<th>Bank</th>
<th>(nominal) Rate</th>
<th>Compounding</th>
<th>APR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amy’s Loans</td>
<td>3.99%</td>
<td>Monthly</td>
<td>4.06%</td>
</tr>
<tr>
<td>Holt Bank</td>
<td>3.95%</td>
<td>Daily</td>
<td>4.03%</td>
</tr>
</tbody>
</table>

Which loan should Drew take and why?

9. (Optional) Amber needs a loan. She’s been comparing different banks and she found Bank A offers loans at 9% interest, compounded daily. Bank B offers loans where the interest is compounded monthly and the APR is 9\(\frac{1}{2}\)% . Bank C offers loans with 9.2% interest compounded quarterly. And Bank D offers loans with effective interest rate of 9.40%. Which option is best for amber?

*Hint, you may want to make a table similar to Question 4*