3/9/2006

Final Exam

Thursday, May 4
12:30 - 2:30
PH 113

March Sudoku due March 23
18 is 150% of the # A's on Test 2

18 = 1.5

18 = 1.5x

\[ \frac{18}{1.5} = \frac{x}{1.5} \]

12 = x

Get # A's on Test 2

\[ \frac{150}{100} = \frac{18}{x} \]

\[ \frac{2}{2} = \frac{18}{x} \]

3x = 2(18)

3x = 36

x = \frac{36}{3}

x = 12
8 g fat

Reduced Fat 41.25% less

fat that whole milk.

\[
\begin{align*}
4125 & \times 8 \\
\frac{33000}{g} & \text{less}
\end{align*}
\]

\[
\begin{align*}
8.0 g & - 3.3 g \\
4.7 g \text{ in reduced fat milk}
\end{align*}
\]
Nov 25 for 120 days

Dec 31 365
Nov 25 - 329
36 days in rest of this year.

120 day
- 36 this year
84 next year

84th day of the year
March 25
- 1 leap year

March 24 due date
Aug 24 to May 15

Dec 31 - Aug 24 = 236

129 days this year

135 next year

264 days
The United States Rule
for partial payment on a loan.

Use
360 days in a year
<table>
<thead>
<tr>
<th>Date</th>
<th>CAD Due</th>
<th>Payment</th>
<th>Int to Interest</th>
<th>Int to Principal</th>
<th>New Bal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 15</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>45000.00</td>
</tr>
<tr>
<td>March 1</td>
<td>4500.00</td>
<td>2000</td>
<td>16.88</td>
<td>1983.12</td>
<td>2516.88</td>
</tr>
<tr>
<td>April 15</td>
<td>2516.88</td>
<td>2526.32</td>
<td>9.44</td>
<td>2516.88</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ j = \frac{\text{Rate}}{360} \times \frac{\text{Days}}{100} \]

\[ i = j \]

\[ i = \frac{2516.88}{360} \times 0.03 \times \frac{10}{45} \]

\[ i = 9.44 \]

\[ \text{April 15:} \] 105% of 2516.88 due on April 15.
Compound Interest

You earn interest on your interest.

EX: Invest $1000 @ 10% for 1 year

Simple interest: How much after 1 year?

Begin

$1000

End 1 yr

$1100 after 1 yr

\[ i = \frac{Prt}{100} \]
\[ i = 1000(0.1)(1) \]
\[ i = 100 \]

\[ A = P + i \]
\[ A = 1100 \]
Ex: Invest $1000@ 10% compounded semiannually. (every 6 mo)
How much will I have after 1 year?

\[
\begin{align*}
\text{Begin} & \quad 6\text{mo} & \quad \text{End Year} \\
\$1000 & \quad 8\text{1050} & \\
\end{align*}
\]

\[
\begin{align*}
i &= \frac{p \cdot r \cdot t}{100} \\
i &= 1000 \cdot 0.1(\frac{6}{12}) \\
i &= 50 \\
A &= P + i \\
A &= 1000 + 50 \\
A &= \$1050
\end{align*}
\]

\[
\begin{align*}
i &= \frac{p \cdot r \cdot t}{100} \\
i &= 1050 \cdot 0.1(\frac{6}{12}) \\
i &= 52.50 \\
A &= P + i \\
A &= 1050 + 52.50 \\
A &= \$1102.50
\end{align*}
\]
Compound Interest Formula

\[ A = P \left(1 + \frac{r}{n}\right)^{nt} \]

- \( A \): Amount the investment grows into
- \( P \): principal
- \( r \): annual interest rate (as decimal)
- \( n \): number of compounding periods per year
- \( t \): number of years
Do Ex by formula.

Invest $1000 @ 10% compounded semiannually for 1 year. How much after 1 year?

\[
A = P \left(1 + \frac{r}{n}\right)^{nt}
\]

\[
A = 1000 \left(1 + \frac{0.1}{2}\right)^2 \times 1
\]

\[
A = \$ 1102.50
\]
Same example

Compound monthly

\[ n = 12 \]

\[ A = 1000 \left(1 + \frac{r}{12}\right)^{12} \]

\[ A = \$1104.71 \]
The Power of Compound Interest

Invest \$10,000 @ 8% compounded monthly. How much will you have in 45 years?

\[ A = P \left(1 + \frac{r}{n}\right)^{nt} \]

\[ A = 10000 \left(1 + \frac{.08}{12}\right)^{12(45)} \]

\[ A \approx 361,635.99 \]
Tuesday  March 21

11.1  Do those assigned

11.2  Do those assigned

11.3  1-27 odd