ANEXO 9

EJERCICIOS RESUELTOS (MAYRA RODRÍGUEZ)

INTERÉS SIMPLE

1.- ¿Cuál es el Interés Simple de un capital de $652 000 con una tasa nominal simple ordinaria del 15% semestral en 5 meses?

<table>
<thead>
<tr>
<th>I =?</th>
<th>P = $652,000.00</th>
<th>i = 15% semestral</th>
<th>n = 5 meses</th>
</tr>
</thead>
</table>

\[
I = P \times i \times n \\
I = \$652,000.00 \times \frac{15}{6} \times 5 \\
I = \$652,000.00 \times .025 \times 5 \\
I = \$81,500.00
\]

INTERÉS SIMPLE = $81,500.00

2.- ¿Qué cantidad genera un capital de $125,000.00 con una tasa nominal simple ordinaria del 22% en 4 meses?

<table>
<thead>
<tr>
<th>S=?</th>
<th>P = $125,000.00</th>
<th>i = 22%</th>
<th>n = 4 meses</th>
</tr>
</thead>
</table>

\[
S = P + (P \times i \times n) \\
S = \$125,000.00 + (\$125,000.00 \times \frac{22}{12 \times 4}) \\
S = \$125,000.00 + (\$125,000.00 \times .018333 \times 4) \\
S = \$125,000.00 + \$9,166.66 \\
S = \$134,166.66
\]

CANTIDAD QUE SE GENERA = $134,166.65
3.-¿Qué cantidad genera un capital de $13,553.00 a una tasa del 45% en 10.5 meses?

| S =? | P = $13,553.00 | i = 45% | n = 10.5 meses |

\[ S = P + (P \times i \times n) \]

\[ S = $13,553.00 + \left( \frac{$13,553.00 \times 45\% \times 10.5}{12} \right) \]

\[ S = $13,553.00 + (45\% \times 0.875) \]

\[ S = $13,553.00 + (6098.85 \times 0.875) \]

\[ S = $13,553.00 + $5,336.49 \]

\[ S = $18,889.49 \]

**CANTIDAD QUE SE GENERA = $18,889.49**

4.-Una casa tiene un valor de $785,550.00 de contado. El Sr. Rogelio Guerra acuerda pagar $440,000.00 el 30 de septiembre y el resto mediante un único pago de $350,000.00 el 28 de noviembre. ¿Cuál es la tasa?

$785,550.00 – $440,000.00 = $345,550.00

$350,000.00 – $345,550.00 = $5,550.00

30 de septiembre – 28 de noviembre: 59 días

\[ i = \frac{I(360)}{P_t} \]

\[ i = \frac{$5,550.00 \times (360)}{\$345,550.00 \times 59} = \frac{1'998,000.00}{20'387,745.00} = 0.098000 \]

**Tasa= 0.098000%**
COMPROBACIÓN:

\[ I = P \times i \times n \]
\[ I = 345,550.00 \times 0.0980000 \times \left( \frac{59}{360} \right) \]
\[ I = 345,550.00 \times 0.0980000 \times 0.1638888 \]
\[ I = 345,550.00 \times 0.0160611 \]
\[ I = 5,549.91 \]

5. ¿Cuál es el valor presente de $73,521.50 con un interés trimestral del 13% en 6 meses?

<table>
<thead>
<tr>
<th>C (importe a recibir) = $73,521.50</th>
<th>i = 13% trimestral</th>
<th>n = 6 meses</th>
</tr>
</thead>
</table>

\[ VP = \frac{C}{(1 + in)} \]
\[ VP = \frac{73,521.50}{(1 + 0.13 \times 2)} \]
\[ VP = \frac{73,521.50}{1.26} \]
\[ VP = 58,350.40 \]

EL VALOR PRESENTE DE $73,521.50 ES DE $58,350.40
6.- ¿Cuál es el valor presente de $152,144.75 con una tasa nominal simple ordinaria del 32% en 18 meses?

\[
VP = \frac{C}{(1+in)}
\]

\[
VP = \frac{\$152,144.75}{1 + \left(0.32 \times \frac{18}{12}\right)}
\]

\[
VP = \frac{\$152,144.75}{1 + (0.32 \times 1.5)}
\]

\[
VP = \frac{\$152,144.75}{1.48}
\]

\[
VP = \$102,800.51
\]

**EL VALOR PRESENTE DE $152,144.75 ES $102,800.51**
Interés compuesto

7.- ¿Cuál es el monto que genera $230 000 con una tasa nominal ordinaria del 14 % capitalizable semestralmente en 5 años?

<table>
<thead>
<tr>
<th>P = $230,000.00</th>
<th>i= 14%</th>
<th>m= semestral</th>
<th>n=5 años</th>
</tr>
</thead>
</table>

\[ S = P \left( 1 + \frac{i}{m} \right)^n \]

\[ S = $230,000.00 \times \left( 1 + \frac{0.14}{2} \right)^{10} \]

\[ S = $230,000.00 \times \left( 1 + 0.07 \right)^{10} \]

\[ S = $230,000.00 \times \left( 1.9671513 \right)^{10} \]

\[ S = $452,444.81 \]

**EL MONTO QUE SE GENERA ES:$452,444.81**
8.- REESTRUCTURAR LOS SIGUIENTES PAGOS (INTERÉS SIMPLE):

\[ i = 4.5\% \text{ nominal simple ordinario} \]

\[ V_{\text{EO}}: \]

<table>
<thead>
<tr>
<th>FECHA</th>
<th>IMPORTE</th>
<th>DIAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 DE MARZO</td>
<td>$14,000.00</td>
<td>165 DÍAS AFF</td>
</tr>
<tr>
<td>8 DE MAYO</td>
<td>$22,000.00</td>
<td>99 DÍAS AFF</td>
</tr>
<tr>
<td>20 DE JUNIO</td>
<td>$72,000.00</td>
<td>56 DÍAS AFF</td>
</tr>
<tr>
<td>15 DE AGOSTO</td>
<td>$50,000.00</td>
<td>FF</td>
</tr>
<tr>
<td>9 DE OCTUBRE</td>
<td>$35,000.00</td>
<td>55 DÍAS PFF</td>
</tr>
<tr>
<td>10 DE NOVIEMBRE</td>
<td>$10,000.00</td>
<td>87 DÍAS PFF</td>
</tr>
</tbody>
</table>

\[ V_{\text{EN}} = 6 \text{ PAGOS IGUALES} \]

<table>
<thead>
<tr>
<th>NÚMERO DE PAGO</th>
<th>DÍAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FF</td>
</tr>
<tr>
<td>2</td>
<td>30 DÍAS PFF</td>
</tr>
<tr>
<td>3</td>
<td>50 DÍAS PFF</td>
</tr>
<tr>
<td>4</td>
<td>65 DÍAS PFF</td>
</tr>
<tr>
<td>5</td>
<td>80 DÍAS PFF</td>
</tr>
<tr>
<td>6</td>
<td>92 DÍAS PFF</td>
</tr>
</tbody>
</table>

\[
V_{EO} = \sum_{l=1}^{i} S_{aff} (1 + in) + \sum_{l=1}^{i} S_{ff} + \sum_{l=1}^{i} \frac{S_{pff}}{1 + in}
\]
\[ V_{EO} = 14,000.00 + \left(1 + \frac{.045 \times 165}{30}\right) + 22,000.00 \left(1 + \frac{.045 \times 99}{30}\right) + 72,000.00 \left(1 + \frac{.045 \times 56}{30}\right) + 50,000.00 + \ldots \]

\[ \cdots + \frac{35,000.00}{1 + \left(\frac{.045 \times 55}{30}\right)} + \frac{100,000.00}{1 + \left(\frac{.045 \times 87}{30}\right)} \]

\[ VEO = 14,000.00 \left(1 + \frac{.00375 \times 5.5}{1 + \frac{.00375 \times 3.3}{1 + \frac{.00375 \times 1.8666666}{1 + \frac{.00375 \times 2.9}{\ldots}}}}\right) + 22,000.00 \left(1 + \frac{.00375 \times 12.75}{1 + \frac{.00375 \times 10.25}{1 + \frac{.00375 \times 8.0}{\ldots}}}\right) + 72,000.00 \left(1 + \frac{.00375 \times 5.5}{1 + \frac{.00375 \times 3.3}{1 + \frac{.00375 \times 1.8666666}{1 + \frac{.00375 \times 2.9}{\ldots}}}}\right) + 50,000.00 + \ldots \]

\[ VEO = 14,288.75 + 22,272.25 + 72,503.99 + 50,000.00 + 34,761.02 + 9,892.42 \]

\[ VEO = 203,718.43 \]

\[ V_{EN} = \sum_{1=n}^{t} 1_{aff}(1 + in) + 1_{ff} + \sum_{1=n}^{t} \frac{1_{pff}}{1 + in} \]
\[ V_{EN} = 1 + \frac{1}{\left( \frac{0.045}{12} \right) + \frac{1}{30}} + \frac{1}{\left( \frac{0.045}{12} \right) + \frac{1}{50}} + \frac{1}{\left( \frac{0.045}{12} \right) + \frac{1}{65}} + \frac{1}{\left( \frac{0.045}{12} \right) + \frac{1}{80}} + \frac{1}{\left( \frac{0.045}{12} \right) + \frac{1}{92}} \]

\[ V_{EN} = 1 + \frac{1}{1.00375} + \frac{1}{1 + (0.00375 \times 1.6666666)} + \frac{1}{1 + (0.00375 \times 2.1666666)} + \ldots \]

\[ \ldots + \frac{1}{1 + (0.00375 \times 2.6666666)} + \frac{1}{1 + (0.00375 \times 3.0666666)} \]

\[ V_{EN} = 1 + 0.9962640 + \frac{1}{1.0062499} + \frac{1}{1.0081249} + \frac{1}{1.0099999} + \frac{1}{1.0114999} \]

\[ V_{EN} = 1 + 0.9962640 + 0.993889 + 0.9919405 + 0.9900991 + 0.9886308 \]

\[ V_{EN} = 5.9607233 \]

\[ Y = \frac{V_{EQ}}{V_{EN}} = \frac{\$203,718.43}{5.9607253} = \$34,176.79 \]

**VALOR DE CADA PAGO CON EL NUEVO ESQUEMA: $34,176.79**
9.-CON LOS DATOS DEL PROBLEMA ANTERIOR REESTRUCTURAR LOS PAGOS MEDIANTE INTERÉS COMPUESTO:

i= 4.5%
m= bimestral

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</tr>
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</table>

\[
V_{EO} = \sum_{1=n}^{i} S_{aff} (1+i)^n + S_{ff} + \sum_{1=n}^{i} \frac{S_{pff}}{(1+i)^n}
\]
\[ V_{EO} = \$14,000.00 \left(1 + \frac{0.045}{6}\right)^{165/6} + \$22,000.00 \left(1 + \frac{0.045}{6}\right)^{99/6} + \$72,000.00 \left(1 + \frac{0.045}{6}\right)^{56/6} + ... \]

\[ ... + \$50,000.00 \left(1 + \frac{0.045}{6}\right)^{27/6} + \$10,000.00 \left(1 + \frac{0.045}{6}\right)^{87/6} \]

\[ V_{EO} = \$14,000.00 \left(1 + \frac{0.045}{12}\right)^{2.75} + \$22,000.00 \left(1 + \frac{0.045}{12}\right)^{1.65} + \$72,000.00 \left(1 + \frac{0.045}{12}\right)^{0.333333} + ... \]

\[ ... + \$50,000.00 \left(1 + \frac{0.045}{12}\right)^{1.45} + \$10,000.00 \left(1 + \frac{0.045}{12}\right)^{1.45} \]

\[ V_{EO} = \$14,290.65 + \$22,272.91 + \$72,503.87 + \$50,000.00 + \$19,370.48 + \$9,892.24 \]

\[ V_{EO} = \$188,330.15 \]

\[ VEN = \sum_{t=1}^{t=n} 1_{aff} (1+i)^n + 1_{ff} + \sum_{t=1}^{t=n} \frac{1_{pff}}{(1+i)^n} \]
\[ V_{EN} = 1 + \left( \frac{1}{1.0075} \right)^{\frac{30}{60}} + \left( \frac{1}{1.0075} \right)^{\frac{50}{60}} + \left( \frac{1}{1.0075} \right)^{\frac{65}{60}} + \left( \frac{1}{1.0075} \right)^{\frac{80}{60}} + \left( \frac{1}{1.0075} \right)^{\frac{92}{60}} \]

\[ V_{EN} = 1 + \left( \frac{1}{1.0075} \right)^0.5 + \left( \frac{1}{1.0075} \right)^{0.833333} + \left( \frac{1}{1.0075} \right)^{1.083333} + \left( \frac{1}{1.0075} \right)^{1.333333} + \left( \frac{1}{1.0075} \right)^{1.533333} \]

\[ V_{EN} = 1 + \left( \frac{1}{1.0037429} \right) + \left( \frac{1}{1.0062461} \right) + \left( \frac{1}{1.0081275} \right) + \left( \frac{1}{1.0100124} \right) + \left( \frac{1}{1.0115229} \right) \]

\[ V_{EN} = 1 + 0.996271 + 0.9937926 + 0.9919380 + 0.990868 + 0.9886083 \]

\[ V_{EN} = 5.9606967 \]

\[ Y = \frac{V_{EO}}{V_{EN}} = \frac{188,330.15}{5.9606967} = 31,595.33 \]

**VALOR DE CADA PAGO CON EL NUEVO ESQUEMA: $31,595.33**
10.- Dulce María invierte $50,700.00 en el Banco HSBWC a una tasa semestral del 2.3\% capitalizable bimestralmente. Lo invertirá en 1,363 días, debido a que el día siguiente lo ocupará porque se irá de vacaciones a Cancún.

- Además Dulce María quisiera saber: ¿En qué tiempo obtendrá 4.5 veces su valor?

\[ S_1 = P \left(1 + \frac{i}{m}\right)^n \]

\[ S_1 = \$50,700.00 \times \left(1 + \frac{0.023}{3}\right)^{\frac{1363}{60}} \]

\[ S_1 = \$50,700.00 \times \left(1 + \frac{0.023}{3}\right)^{22.7166666} \]

\[ S_1 = \$50,700.00 \times (1 + 0.0076666) \]

\[ S_1 = \$60,305.46 \]

Para que su valor sea de 4.5 veces, tenemos ahora que:

\[ n = \frac{\log(4.5)}{\log(1.0076666)} = \frac{0.65321251}{0.00331689} = 196.9352603 \]
**Comprobación:**

\[ S_2 = S_1 \times (1+i)^n \]

\[ S_2 = 60,305.46 \times (1.0076666)^{196.9352603} \]

\[ S_2 = 60,305.46 \times 4.5000000 \]

\[ S_2 = 271,374.57 \]

Que es lo mismo que.

\[ \$60,305.46 + \$60,305.46 + \$60,305.46 + \$60,305.46 + \frac{\$60,305.46}{2} = \$271,374.57 \]

**11.-OBTENER LOS MONTOS DE ACUERDO CON LOS SIGUIENTES DATOS:**

Calcular \( S_1 \) y posteriormente llevar a \( N_1 \) y \( N_2 \) la cantidad obtenida de \( S_1 \) para obtener \( S_2 \) y \( S_3 \)

\[ P = 362,114.20 \]

\[ i = 33\% \text{ semestral} \]

\[ n = 27 \text{ meses} \]

\[ m = \text{trimestral} \]

Convertir \( N_1 = 3.7 \) veces

Convertir \( N_2 = 8.4 \) veces

\( S_1 = ? \)

\( S_2 = ? \)

\( S_3 = ? \)

Calcular \( S_1 \)

Para \( S_1 \) tenemos que:
\[ S_1 = P \left(1 + \frac{i}{m}\right)^n \]

\[ S_1 = 362,114.20 \times \left(1 + \frac{33}{2}\right)^{27} \]

\[ S_1 = 362,114.20 \times (1 + 0.165)^{4.5} \]

\[ S_1 = 362,114.20 \times (1.988230191) \]

\[ S_1 = 719,966.38 \]

Si \( S_1=719,966.38 \) y se desea transformar en 3.7 veces es = $2’663,875.61

Ahora convertir con la fórmula \( N_1 = 3.7 \) veces

\[ n_1 = \frac{\log (3.7)}{\log (1.165)} = 8.56681186 \]

\[ S_2 = S_1 \times \left(1 + \frac{i}{m}\right)^n \]

\[ S_2 = 719,966.38 \times (1.165)^{8.56681186} \]

\[ S_2 = 719,966.38 \times (3.7000000) \]

\[ S_2 = 2’663,875.61 \]

Si \( S_2=719,966.38 \) y se desea transformar en 8.4 veces es = $6’047,717.59

Ahora convertir con la fórmula \( N_2 = 8.4 \) veces
12.- OBTENER LOS MONTOS QUE SE PIDEN DE ACUERDO CON LOS SIGUIENTES DATOS:

\[
P = \$750,148.00 \quad \text{n= 998 días} \quad \text{i=19\% trimestral} \quad \text{m= mensualmente}
\]

\[
S_1 = P \times \left(1 + \frac{i}{m}\right)^n
\]

\[
N_1 = 2.8 \quad \text{veces} \quad \quad N_2 = 7.6 \quad \text{veces} \quad \quad S_1 = \text{¿?} \quad \quad S_2 = \text{¿?} \quad \quad S_3 = \text{¿?}
\]

\[
S_3 = $719,966.38 \quad \text{*(1.165)}^7 \quad \quad S_3 = $6'047,717.59
\]
\[ S_1 = 750,148.00 \times (1 + \frac{19}{3})^{998/30} \]
\[ S_1 = 750,148.00 \times (1 + 0.06333333)^{33.266666} \]
\[ S_1 = 750,148.00 \times (1.0633333)^{33.266666} \]
\[ S_1 = 750,148.00 \times (7.7126378) \]
\[ S_1 = 5'785,619.83 \]

Si \( S_1 = 5'785,619.83 \) y se desea transformar en 2.8 veces es = $16'199,735.52

\[ n_1 = \frac{\log (2.8)}{\log (1.0633333)} = \frac{0.44715803}{0.02666943} = 16.7666906 \]

entonces

\[ S_2 = S_1 \times \left(1 + \frac{i}{m}\right)^n \]
\[ S_2 = 5'785,619.83 \times \left(1.0633333\right)^{16.7666906} \]
\[ S_2 = 5'785,619.83 \times (2.8000000) \]
\[ S_2 = 16'199,735.52 \]

Si \( S_2 = 5'785,619.83 \) y se desea transformar en 7.6 veces es = $43'970,710.71

También se puede tomar \( S_2 \)

\[ n_2 = \frac{\log (7.6)}{\log (1.0633333)} = \frac{0.88081359}{0.02666943} = 33.02709102 \]
\[ S_3 = S_1 \times \left(1 + \frac{i}{m}\right)^n \]
\[ S_3 = 5'785,619.83 \times \left(1.0633333\right)^{33.02709102} \]
\[ S_3 = 5'785,619.83 \times (7.599999) \]
\[ S_3 = 43'970,669.73 \]

\[ S_3 = 5'785,619.83 \]
\[ S_2 = 16'199,735.52 \]
\[ S_3 = 43'970,669.73 \]
13.-El Sr. Ramírez acordó liquidar previamente un crédito con el Banco BANORTAZO habiendo firmado los siguientes:

<table>
<thead>
<tr>
<th>PAGARÉS</th>
<th>FECHA DE VENCIMIENTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>$3,000.00</td>
<td>1 DE MARZO</td>
</tr>
<tr>
<td>$20,000.00</td>
<td>28 DE MAYO</td>
</tr>
<tr>
<td>$15,000.00</td>
<td>15 DE JULIO</td>
</tr>
</tbody>
</table>

Debido a que el Sr. Ramírez no cuenta con los suficientes ingresos para saldar los pagarés acuerda con el Banco reestructurar la deuda de la manera siguiente:

<table>
<thead>
<tr>
<th>NÚMERO DE PAGO</th>
<th>MONTO</th>
<th>FECHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$3,000.00</td>
<td>28 mayo</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>13 de julio</td>
</tr>
<tr>
<td>3</td>
<td>$15,000.00</td>
<td>25 de julio</td>
</tr>
</tbody>
</table>

La fecha focal se acordó será el 30 de mayo.

Se manejará una tasa del 20% capitalizable cada 13 días.

$$V_{EO} = \sum_{1=n}^{t} S_{aff}(1+i)^n + S_{ff} + \sum_{1=n}^{t} \frac{S_{pff}}{(1+i)^n}$$
\[ V_{EO} = \$3,000.00 \left( 1 + \frac{\cdot20}{360} \right)^{\frac{90}{13}} + \$20,000.00 \left( 1 + \frac{\cdot20}{360} \right)^{\frac{2}{13}} + \ldots \]

\[ \ldots + \frac{\$15,000.00}{1 + \left( \frac{\cdot20}{360} \right)^{\frac{46}{13}}} \]

\[ V_{EO} = \$3,000.00 \left( 1 + \frac{\cdot20}{360} \right)^{6.9230769} + \$20,000.00 \left( 1 + \frac{\cdot20}{360} \right)^{0.1538461} + \ldots \]

\[ \ldots + \frac{\$15,000.00}{1 + \left( \frac{\cdot20}{360} \right)^{\frac{3.5384153}{3.5384153}}} \]

\[ V_{EO} = \$3,000.00 \left( 1 + \frac{\cdot10072222}{360} \right)^{6.9230769} + \$20,000.00 \left( 1 + \frac{\cdot10072222}{360} \right)^{0.1538461} + \ldots \]

\[ \ldots + \frac{\$15,000.00}{1 + \left( \frac{\cdot10072222}{360} \right)^{\frac{1.0072222}{1.0072222}}} \]

\[ V_{EO} = \$3,000.00(1.0510820) + \$20,000.00(1.001107) + \frac{\$15,000.00}{1.0257902} \]

\[ V_{EO} = \$3,153.25 + \$20,022.14 + \$14,622.87 \]

\[ V_{EO} = \$37,798.26 \]

\[ V_{EN} = \sum_{l=n}^{t} 1_{aff} (1+i)^{n} + 1_{ff} + \sum_{l=n}^{t} \frac{1_{pff}}{(1+i)^{n}} \]
Entonces: ¿Cuál es el valor del pagaré del 13 de julio?

\[
V_{En} = 3,000.00 \left(1.0072222\right)^{\frac{13}{13}} + \frac{S_2}{\left(1.0072222\right)^{\frac{34}{13}}} + \frac{15,000.00}{\left(1.0072222\right)^{\frac{56}{13}}}
\]

\[
V_{Ev} = 3,000.00 \left(1.0072222\right)^{0.1538461} + \frac{S_2}{\left(1.0072222\right)^{3.3846153}} + \frac{15,000.00}{\left(1.0072222\right)^{4.3076923}}
\]

\[
V_{Ev} = 3,000.00 \left(1.0011077\right) + \frac{S_2}{\left(1.0246555\right)} + \frac{15,000.00}{\left(1.0314846\right)}
\]

\[
V_{Ev} = 3,003.32 + \frac{S_2}{1.0246555} + 14,542.15
\]

\[
S_2 = \frac{V_{EO} - (S_1 + S_3)}{1.0246555}
\]

\[
S_2 = \frac{37,798.26 - (3,003.32 + 14,542.15)}{1.0246555}
\]

\[
S_2 = \frac{(37,798.26 - 17,545.47)}{1.0246555}
\]

\[
S_2 = \frac{20,252.79}{1.0246555}
\]

\[
S_2 = 19,765.46
\]

EL VALOR DEL SEGUNDO PagarÉ ES DE: $19,765.46
14.- Con los siguientes datos resolver lo siguiente:

<table>
<thead>
<tr>
<th>PAGARÉS</th>
<th>FECHA DE VENCIMIENTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>$18,000.00</td>
<td>30 de abril</td>
</tr>
<tr>
<td>$30,000.00</td>
<td>25 de julio</td>
</tr>
<tr>
<td>$15,000.00</td>
<td>29 de septiembre</td>
</tr>
<tr>
<td>$25,000.00</td>
<td>29 de diciembre</td>
</tr>
</tbody>
</table>

Se reestructurarán los pagos de la siguiente manera:

<table>
<thead>
<tr>
<th>NÚMERO DE PAGO</th>
<th>MONTO</th>
<th>FECHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$18,000.00</td>
<td>25 de julio</td>
</tr>
<tr>
<td>2</td>
<td>$30,000.00</td>
<td>8 de agosto</td>
</tr>
<tr>
<td>3</td>
<td>¿?</td>
<td>30 de septiembre</td>
</tr>
<tr>
<td>4</td>
<td>$15,000.00</td>
<td>24 de octubre</td>
</tr>
</tbody>
</table>

Se estableció el 25 de julio como fecha focal

Tasa bimestral del 12% con una capitalización mensual.

\[
V_{EO} = \sum_{l=n}^{t} S_{aff} (1+i)^n + S_{ff} + \sum_{l=n}^{t} \frac{S_{pff}}{(1+i)^n}
\]
\[ V_{EO} = \$18,000.00 \times \left( 1 + \frac{12}{2} \right)^{\frac{152}{30}} + \$30,000.00 \times \left( 1 + \frac{12}{2} \right)^{\frac{66}{30}} + \$15,000.00 + \ldots \]

\[ \ldots + \frac{\$25,000.00}{\left( 1 + \frac{12}{2} \right)^{\frac{91}{30}}} \]

\[ V_{EO} = \$18,000.00 \times \left( 1 + \frac{12}{2} \right)^{5.0666666} + \$30,000.00 \times \left( 1 + \frac{12}{2} \right)^{2.2} + \$15,000.00 + \ldots \]

\[ \ldots + \frac{\$25,000.00}{\left( 1 + \frac{12}{2} \right)^{3.0333333}} \]

\[ V_{EO} = \$18,000.00 (1.06)^{5.0666666} + \$30,000.00 (1.06)^{2.2} + \$15,000.00 + \frac{\$25,000.00}{(1.06)^{3.0333333}} \]

\[ V_{EO} = \$18,000.00 (1.3434341) + \$30,000.00 (1.1367707) + \$15,000.00 + \frac{\$25,000.00}{1.1933315} \]

\[ V_{EO} = \$24,181.81 + \$34,103.12 + \$15,000.00 + \$20,949.75 \]

\[ V_{EO} = \$94,234.68 \]

$18,000.00
25 de julio

$30,000.00
8 de agosto

$15,000.00
30 de octubre

$25,000.00

29 de septiembre FF

30 de septiembre ¿?

\[ V_{EN} = \sum_{n}^{t} 1_{aff} (1+i)^{n} + 1_{ff} + \sum_{n}^{t} \frac{1_{pff}}{(1+i)^{n}} \]
\[ V_{EO} = 18,000.00 \left( 1 + \frac{12}{2} \right)^{\frac{66}{30}} + 30,000.00 \left( 1 + \frac{12}{2} \right)^{\frac{52}{30}} + \frac{S_3}{1} + \ldots \]
\[ \ldots + \frac{15,000.00}{\left( 1 + \frac{12}{2} \right)^{\frac{16}{30}}} \]
\[ V_{EN} = 18,000.00 \left( 1.06 \right)^{\frac{66}{30}} + 30,000.00 \left( 1.06 \right)^{\frac{52}{30}} + \frac{S_3}{1} + \frac{15,000.00}{\left( 1.06 \right)^{\frac{16}{30}}} \]
\[ V_{EN} = 18,000.00 \left( 1.06 \right)^{2.2} + 30,000.00 \left( 1.06 \right)^{1.733333} + \frac{S_3}{1} + \frac{15,000.00}{\left( 1.06 \right)^{0.533333}} \]
\[ V_{EN} = 18,000.00 \left( 1.136770785 \right) + 30,000.00 \left( 1.106276021 \right) + \frac{S_3}{1} + \frac{15,000.00}{1.031564672} \]

\[ V_{EN} = 20,461.87 + 33,188.28 + \frac{S_3}{0.998059591} + 14,541.02 \]

¿Cuál es el valor del tercer pago?

\[ S_3 = \frac{V_{EO} - (S_1 + S_2 + S_4)}{0.998059591} \]
\[ S_3 = \frac{$94,234.68 - ($20,461.87 + $33,188.28 + $14,541.02)}{0.998059591} \]
\[ S_3 = \frac{$94,234.68 - $68,191.17}{0.998059591} \]
\[ S_3 = \frac{$26,043.51}{0.998059591} \]
\[ S_3 = $26,094.14 \]

**EL VALOR DEL TERCER PAGO ES: $26,094.14**