(Mortgage Test 2)

Go to a lender who does a sales comparison approach before giving you a mortgage. You make payments. The amortization of each payment includes interest and

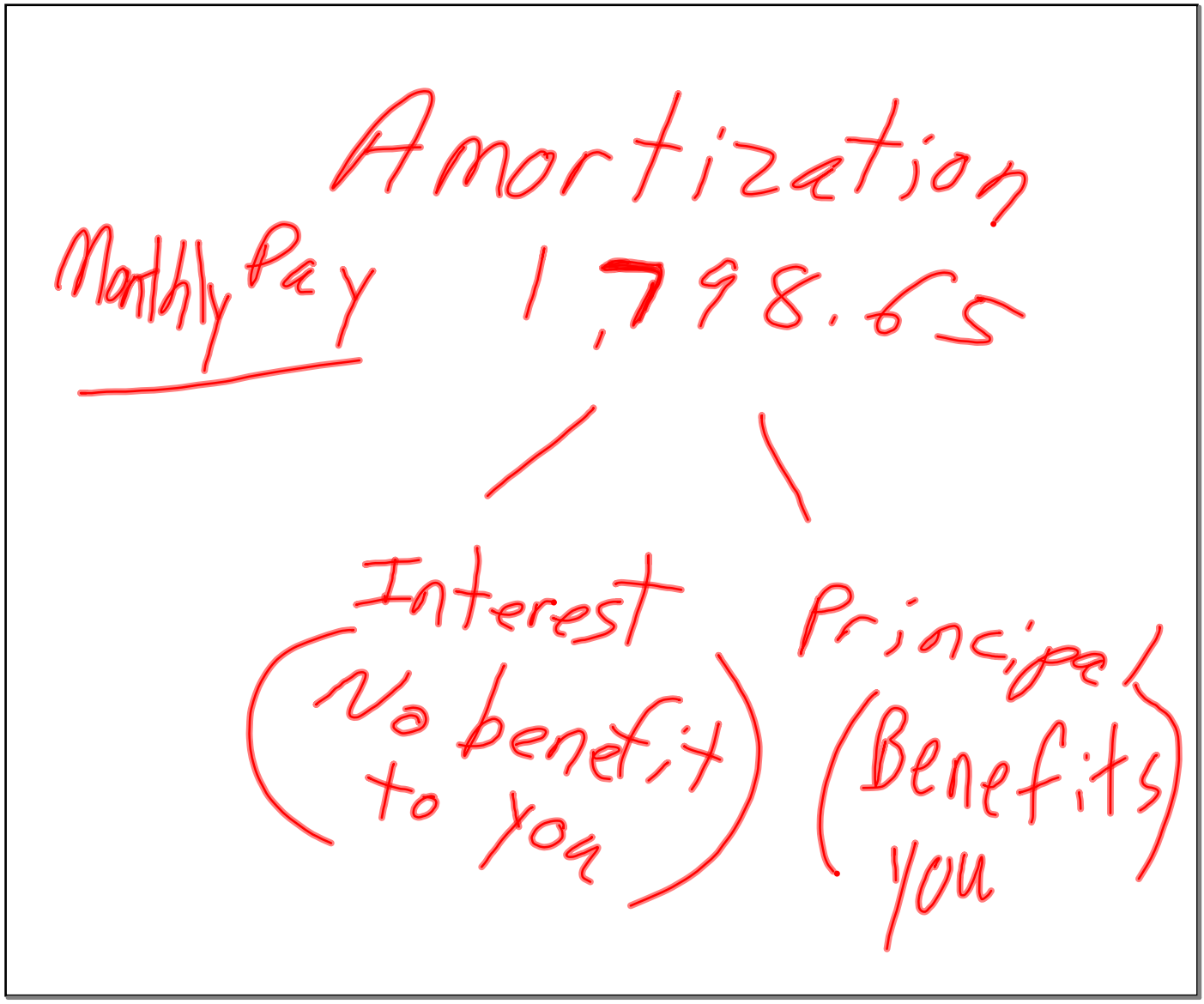
reduces the principal.

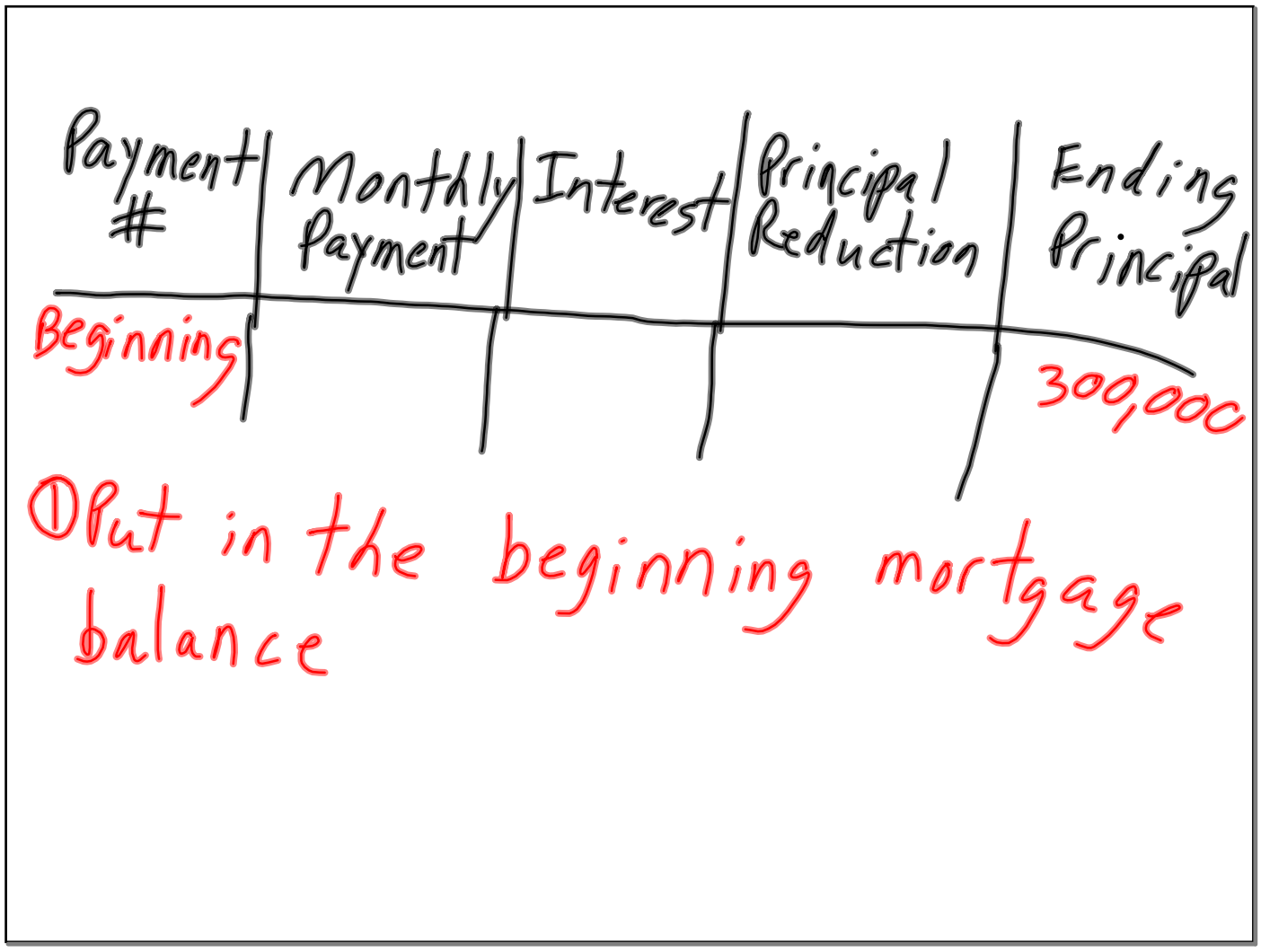
If you don't make a payment then you are in default and the bank will start the foreclosure process.

$300,000 mortgage for 30 years at 6% interest.

Calculate monthly payment:

$$Pmt = \frac{A(i)}{1-(1+i)^{-n}}$$


Amortization
Monthly Pay 1,798.65
Interest
(No benefit to you)
Principal
(Benefits you)


Payment #
Monthly Payment
Interest
Principal Reduction
Ending Principal
Beginning
300,000
① Put in the beginning mortgage balance

② Use $I=Prt$ to calculate interest

$$I = 300{,}000(.06)\left(\frac{1}{12}\right) = 1500$$

*Always use $\frac{1}{12}$ for $t$ for amortization.

③ Subtract the interest from the monthly payment

1798.65 − 1500.00 = 298.65

interest

principal reduction

* Now complete the chart for the 1st payment

The ending principal becomes the new P in month 2.

④ Repeat the process for all payments.

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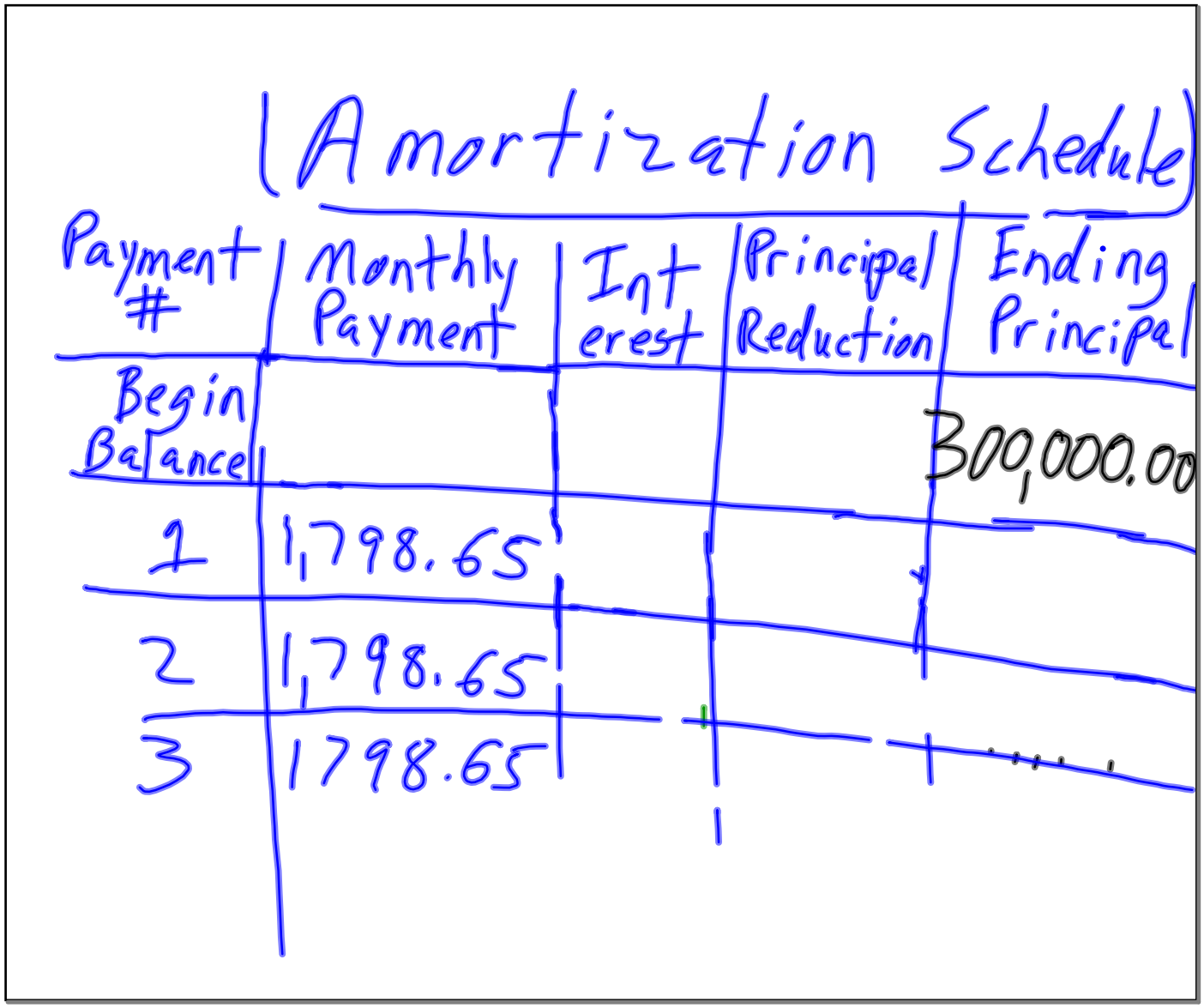
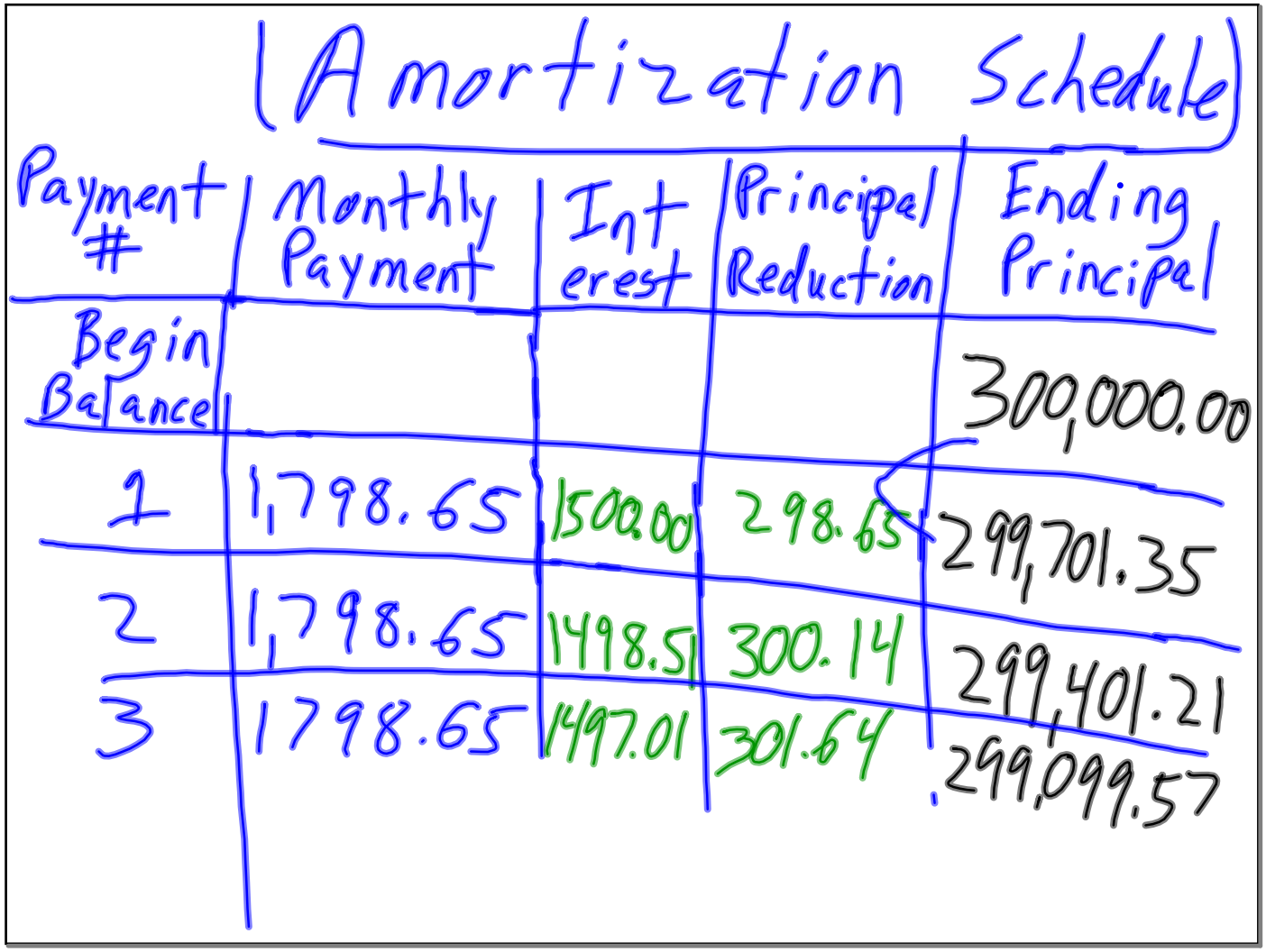
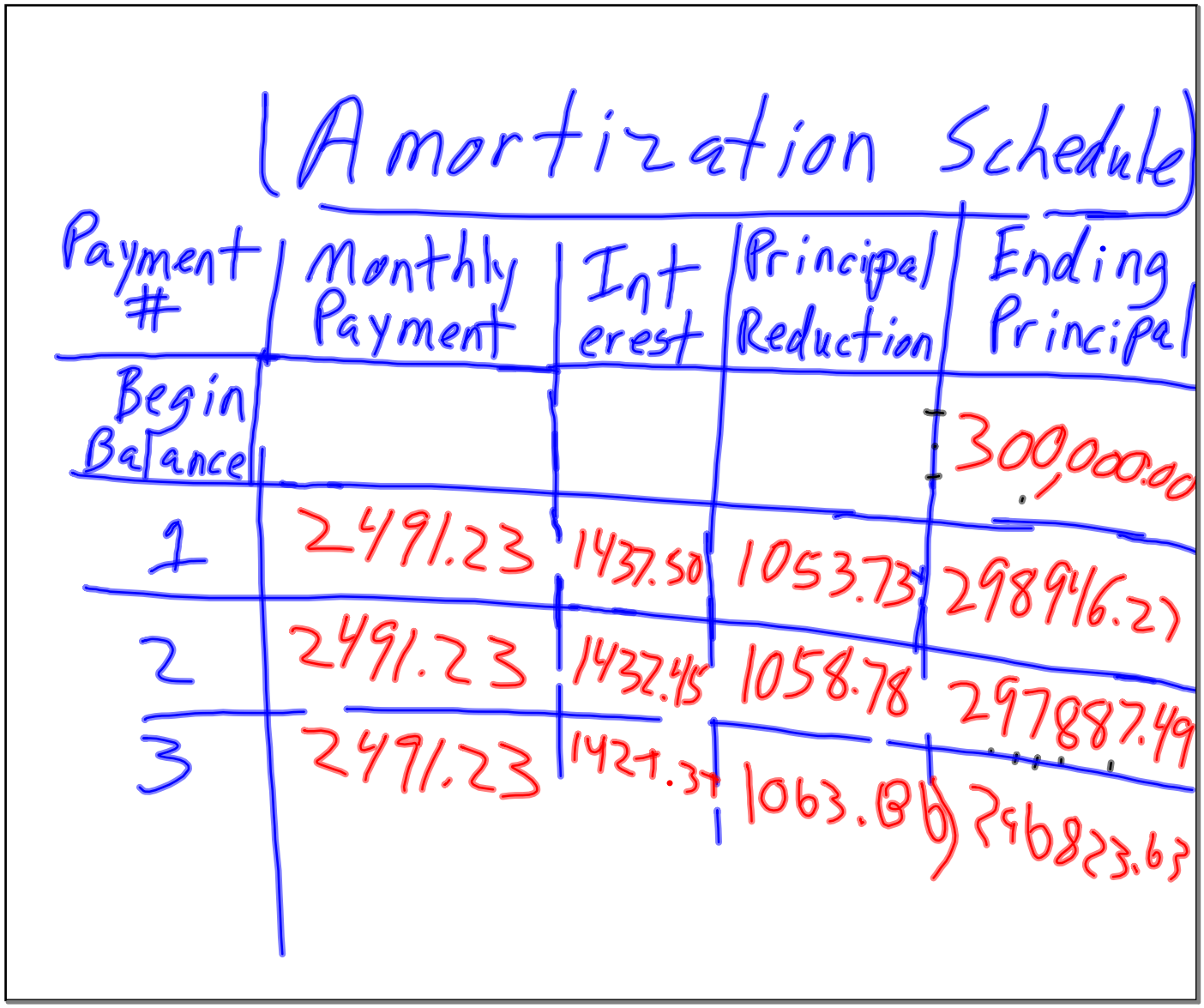



Amortization Schedule
Payment #
Monthly Payment
Interest
Principal Reduction
Ending Principal
Begin Balance
300,000.00
1
1,798.65
1500.00
298.65
299,701.35
2
1,798.65
1498.51
300.14
299,401.21
3
1798.65
1497.01
301.64
299,099.57

You obtain a $300,000 mortgage for 15 years at an APR of 5.75%. Create an amortization schedule for the first 3 payments.

$$PMT = \frac{A(i)}{\left[1-(1+i)^{-n}\right]}$$


Amortization Schedule
Payment #
Monthly Payment
Interest
Principal Reduction
Ending Principal
Begin Balance
300,000.00
1
2491.23
1437.50
1053.73
298946.27
2
2491.23
1432.45
1058.78
297887.49
3
2491.23
1427.37
1063.86
296823.63

Adjustable Rate Mortgage:

1) The rate changes after a period of time as specified in the loan agreement.

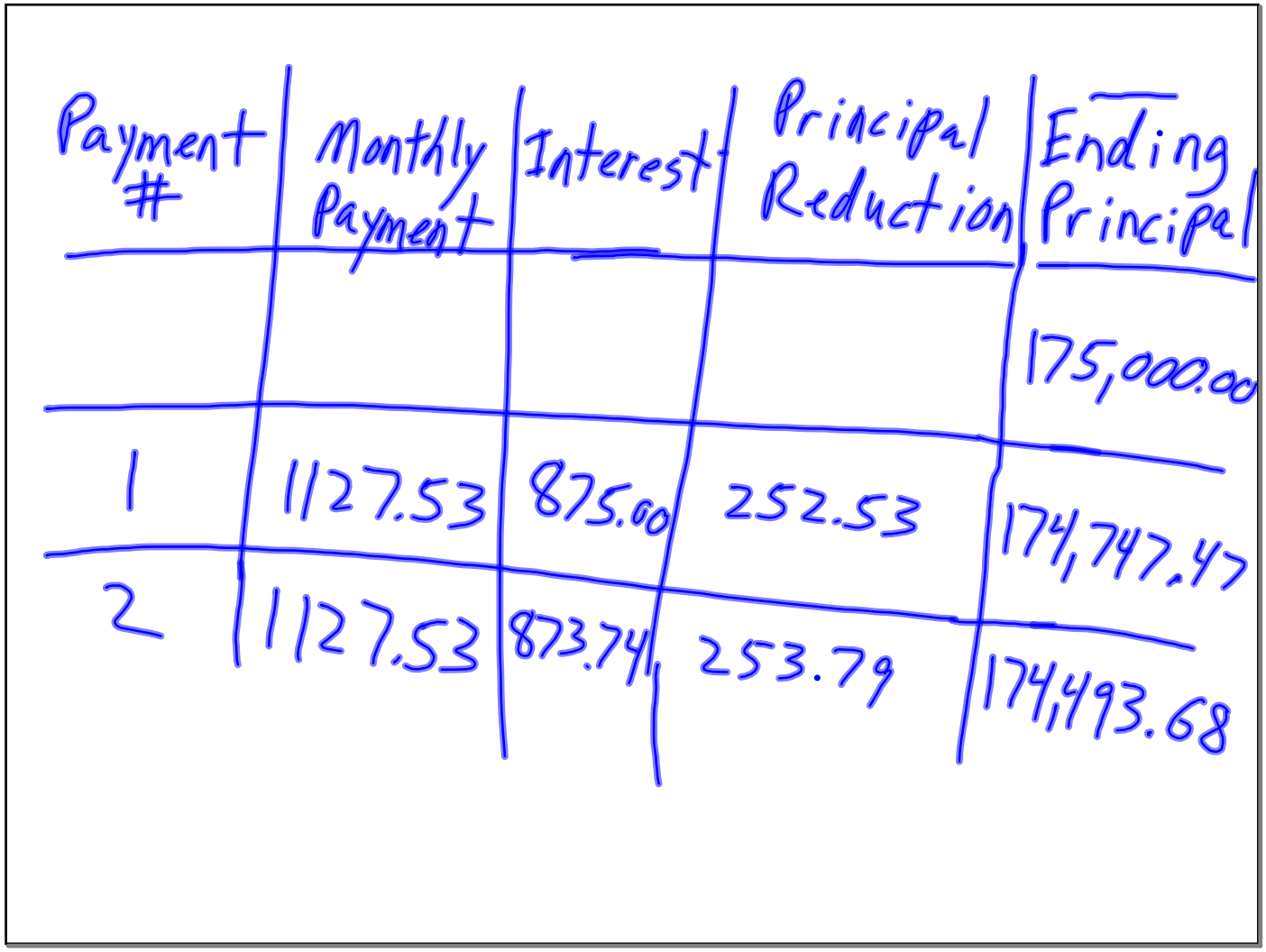
Example: You have a 30 year mortgage that has a balance of $175,000 after 5 years. The APR for the first 5 years was 5%, but the APR increases to 6%. Calculate the amortization for the next 2 months.

*** You must calculate the new monthly payment. The remaining payments have changed to 300 since you made payments for 5 years.

$175,000 balance 6% APR

# Payments left = 360 − 60 = 300

$$PMT = \frac{175000\left(\frac{.06}{12}\right)}{\left[1-\left(1+\frac{.06}{12}\right)^{-300}\right]} = \$1127.53$$



| Payment # | Monthly Payment | Interest | Principal Reduction | Ending Principal |
|---|---|---|---|---|
| | | | | 175,000.00 |
| 1 | 1127.53 | 875.00 | 252.53 | 174,747.47 |
| 2 | 1127.53 | 873.74 | 253.79 | 174,493.68 |

Example: You have a 15 year mortgage that has a balance of $155,000 after 2.5 years . The APR increases to 4.7%. Calculate the amortization for the next 2 months.

$155,000 balance 4.7% APR

# Payments left = 180 - 30 = 150

$$PMT = \frac{155{,}000\left(\frac{.047}{12}\right)}{\left[1-\left(1+\frac{.047}{12}\right)^{-150}\right]} = \$1368.39$$

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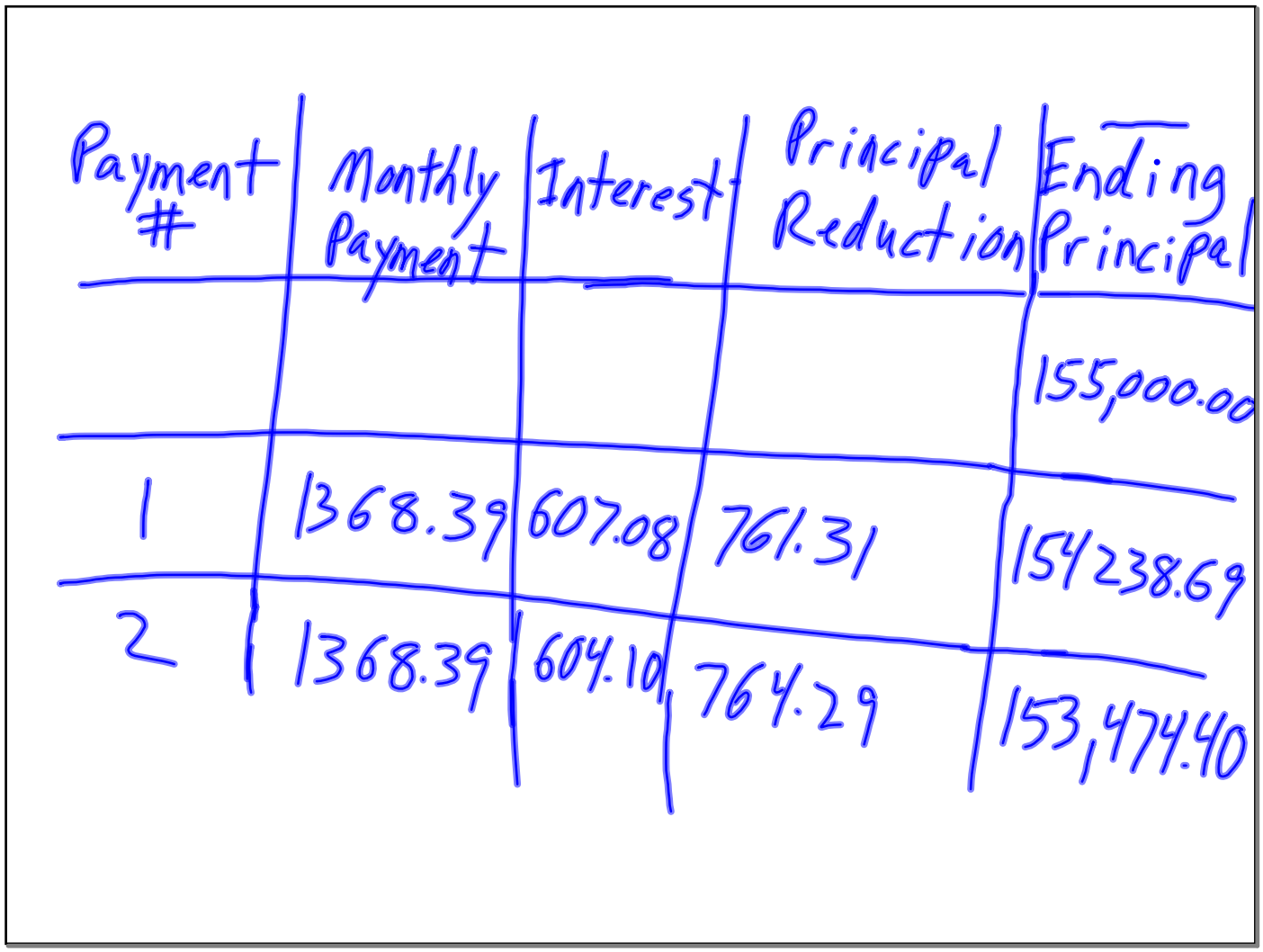


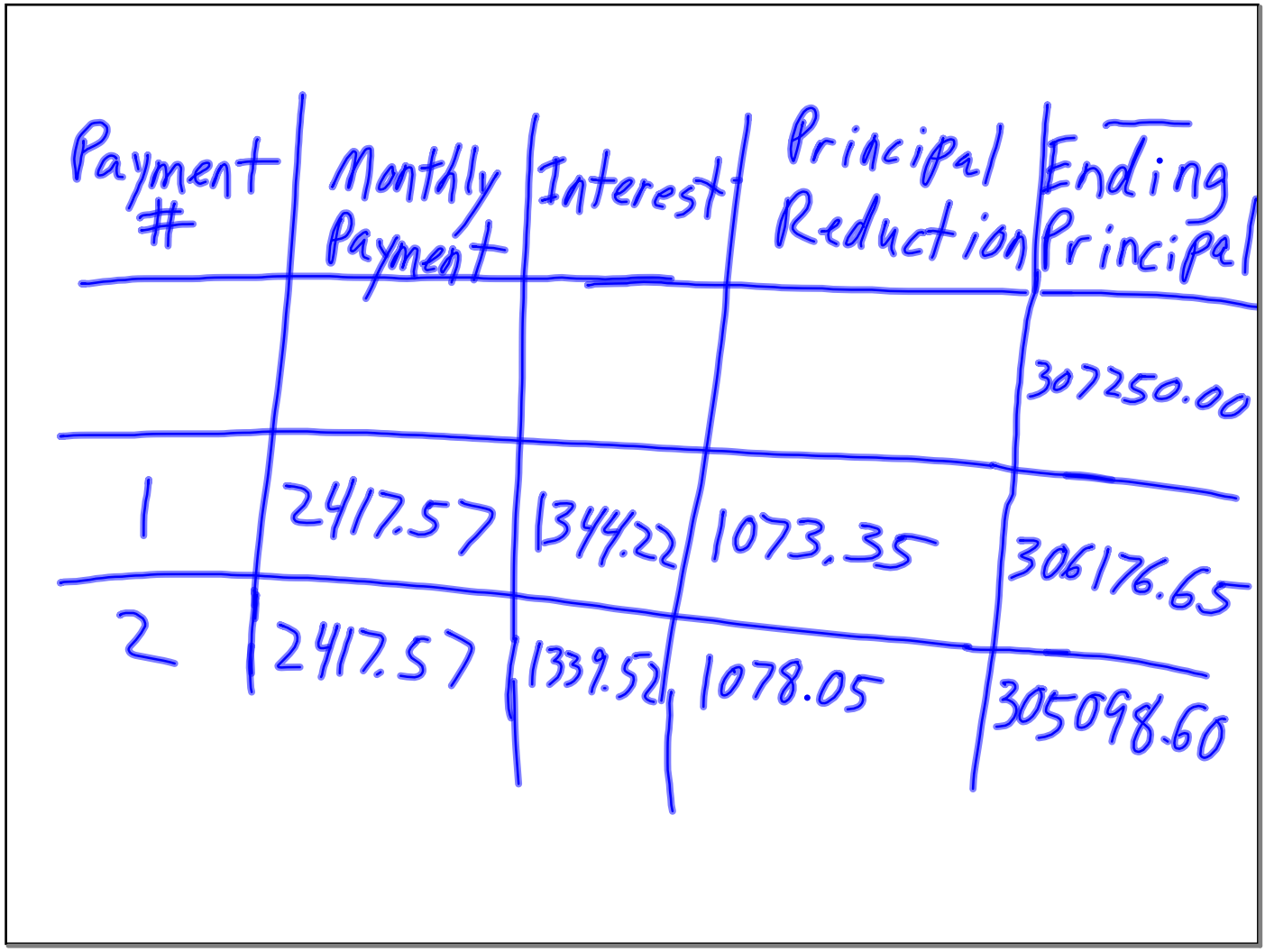
| Payment # | Monthly Payment | Interest | Principal Reduction | Ending Principal |
|---|---|---|---|---|
| | | | | 155,000.00 |
| 1 | 1368.39 | 607.08 | 761.31 | 154238.69 |
| 2 | 1368.39 | 604.10 | 764.29 | 153,474.40 |

Example: You have a 20 year mortgage that has a balance of $307,250 after 4.5 years . The APR increases to 5.25%. Calculate the amortization for the next 2 months.

$307,250 balance 5.25% APR

# Payments left = 240 - 54 = 186

$$PMT = \frac{307250\left(\frac{.0525}{12}\right)}{\left[1-\left(1+\frac{.0525}{12}\right)^{-186}\right]} = \$2417.57$$



| Payment # | Monthly Payment | Interest | Principal Reduction | Ending Principal |
|---|---|---|---|---|
| | | | | 307250.00 |
| 1 | 2417.57 | 1344.22 | 1073.35 | 306176.65 |
| 2 | 2417.57 | 1339.52 | 1078.05 | 305098.60 |

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