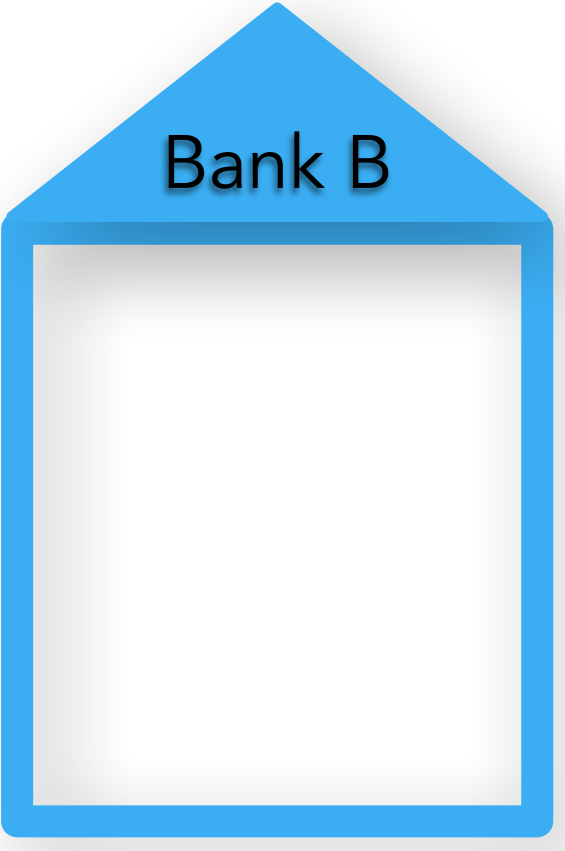
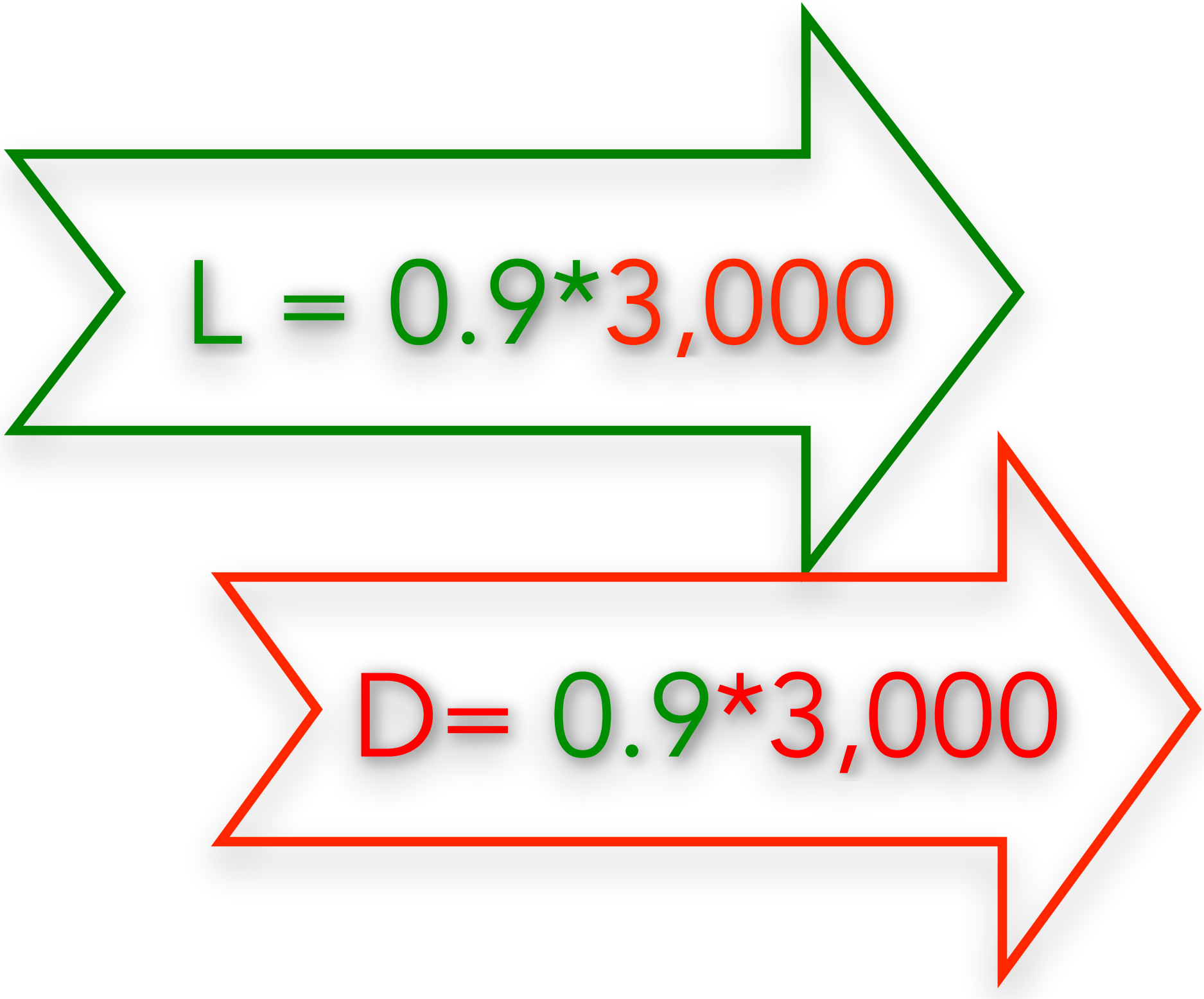
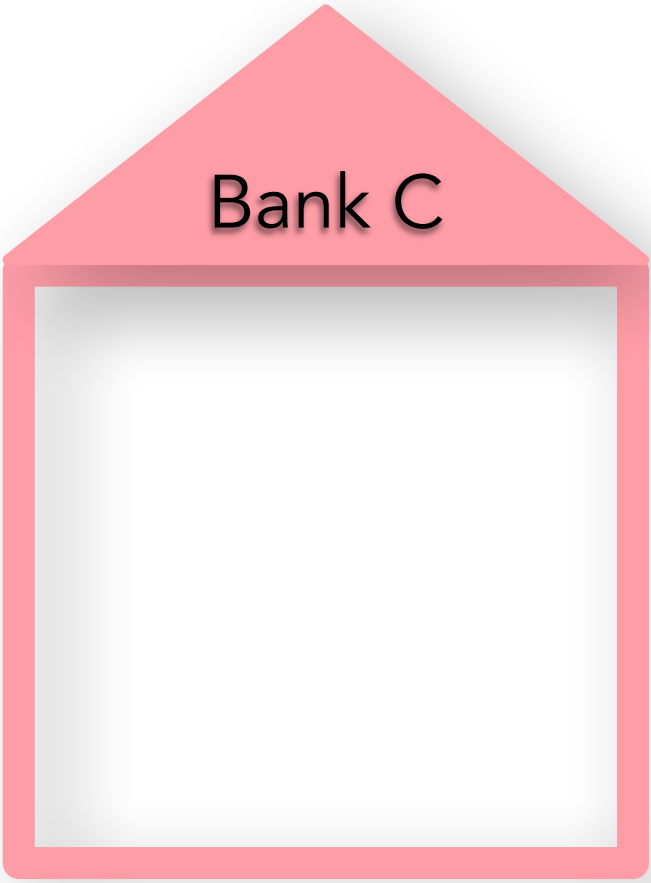
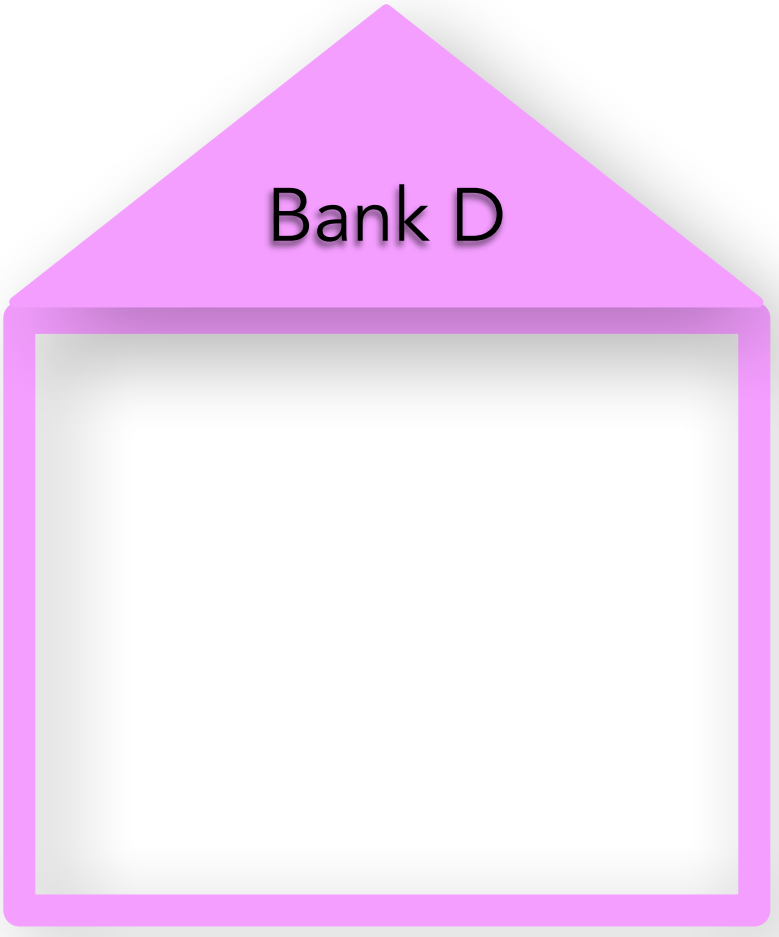

Bank A

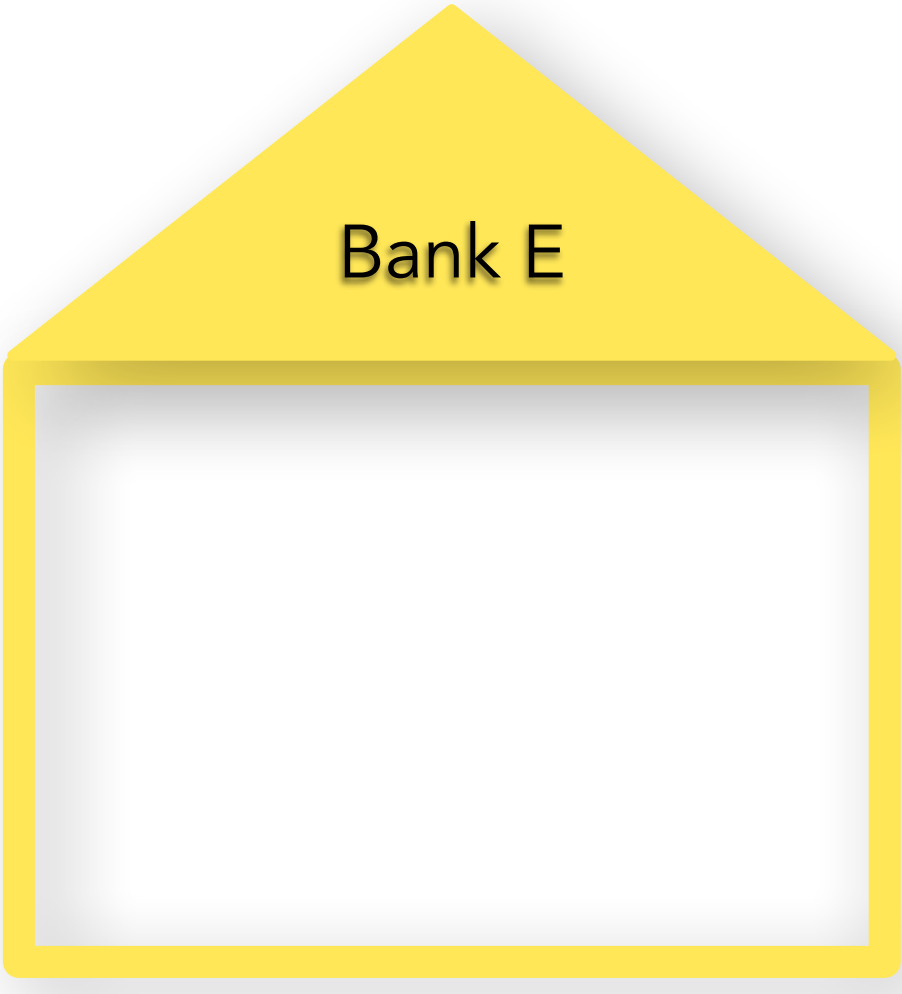

New
Money:
3,000b

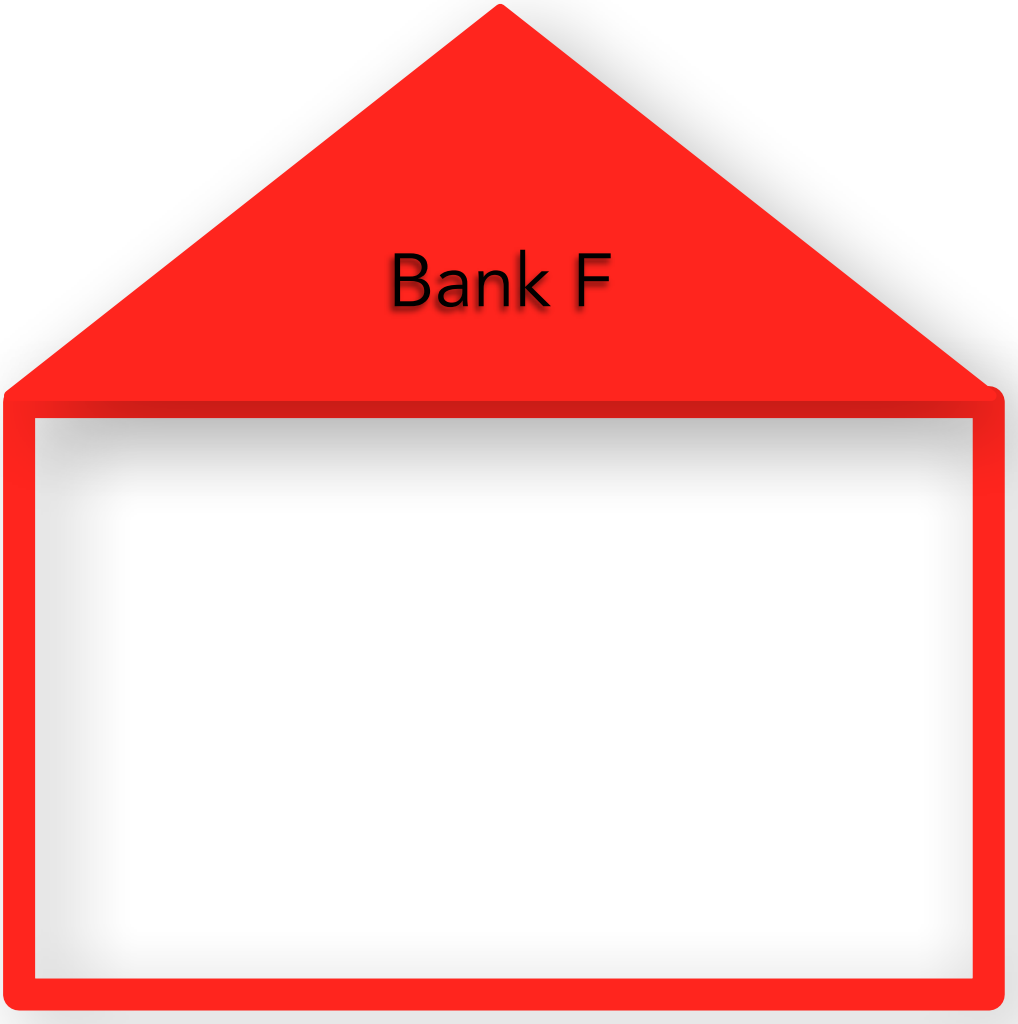

Bank B

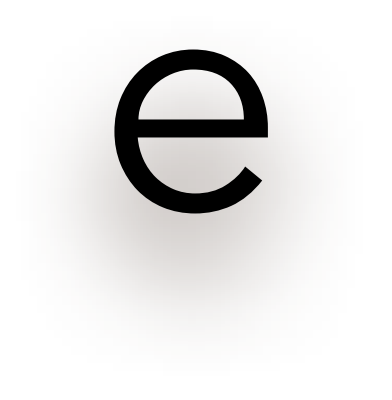

L = 0.9*3,000
D= 0.9*3,000


Bank C


Bank D


Bank E


Bank F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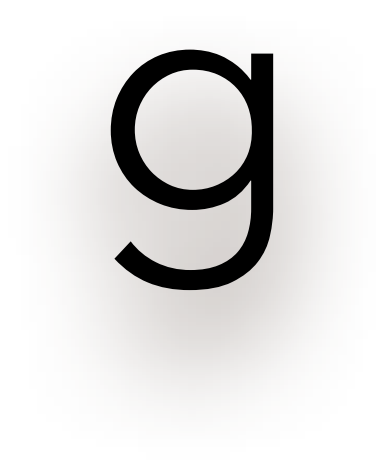

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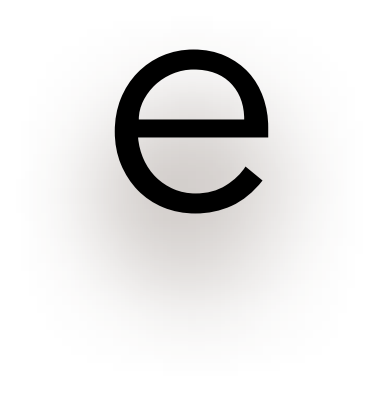
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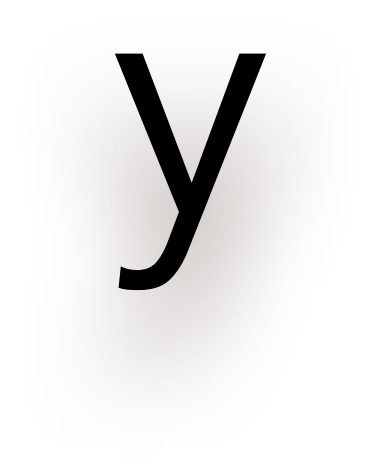
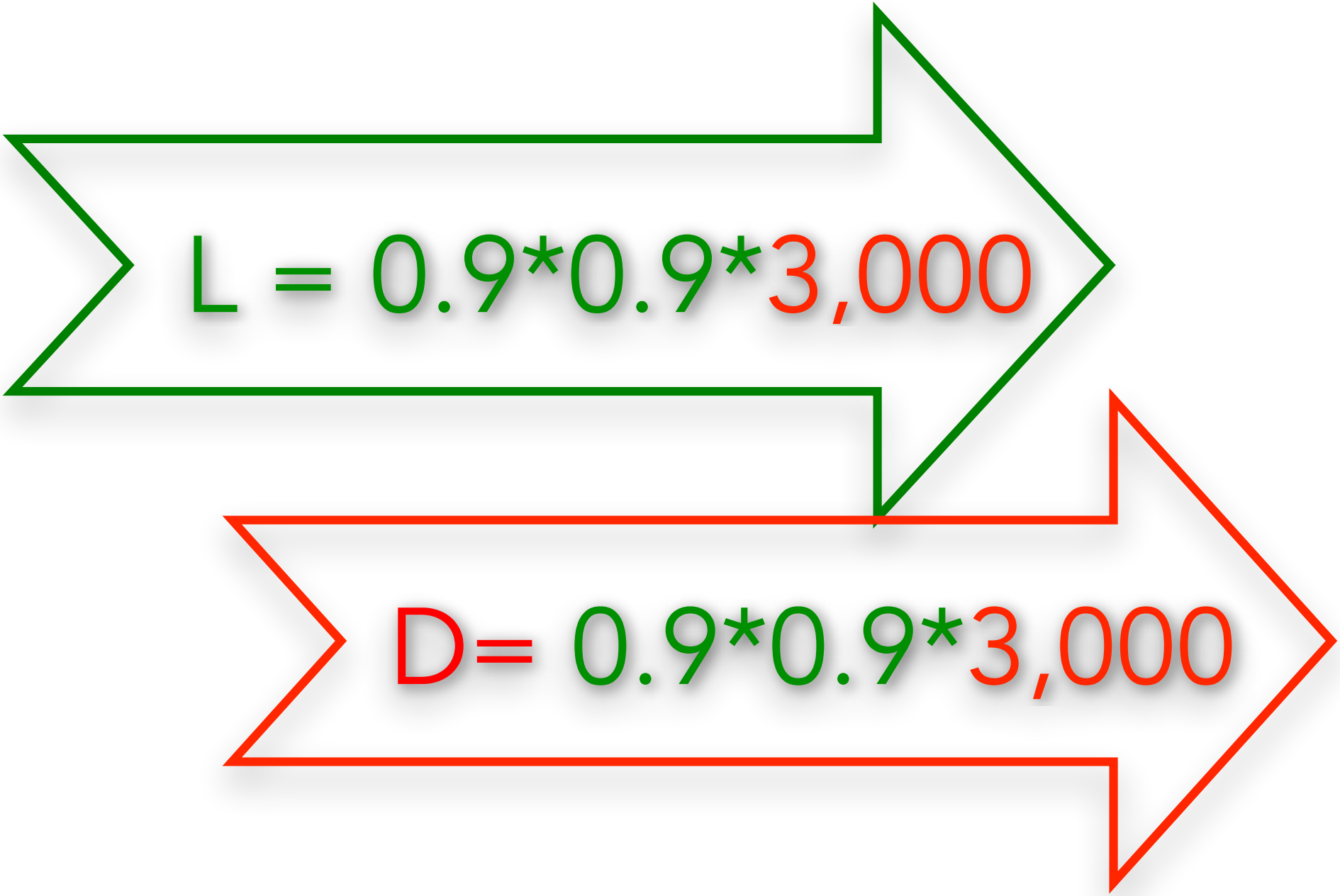

y


D =3,000b

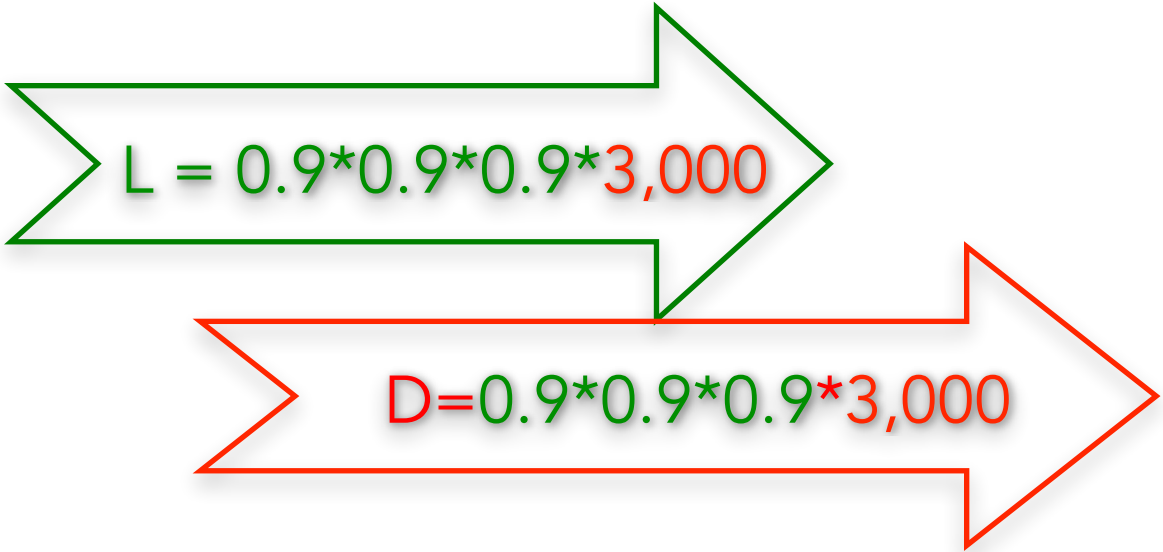

L = 0.9*0.9*3,000
D= 0.9*0.9*3,000

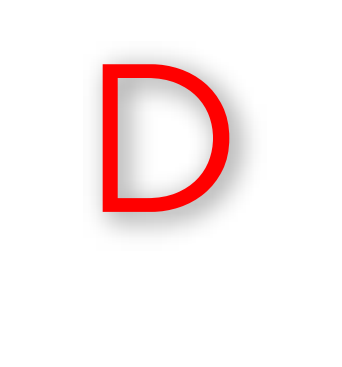
0

9


3


0


L = 0.9*0.9*0.9*3,000
D=0.9*0.9*0.9*3,000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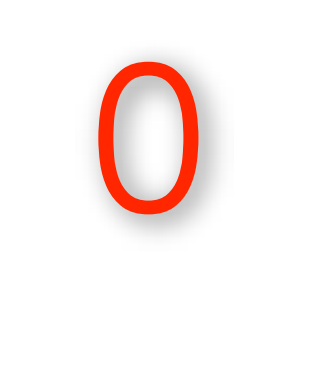
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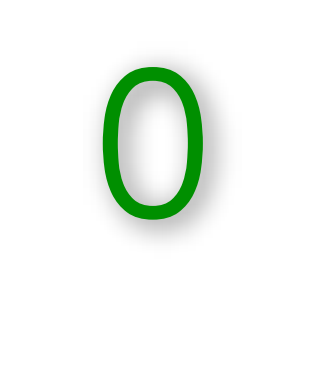
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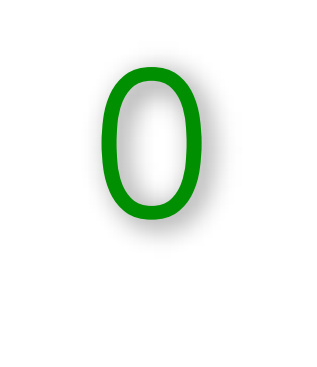
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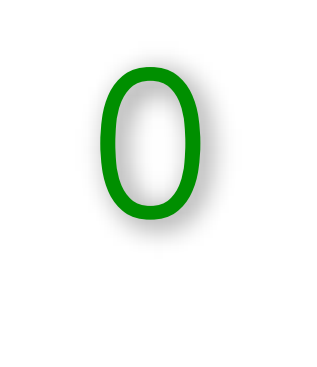
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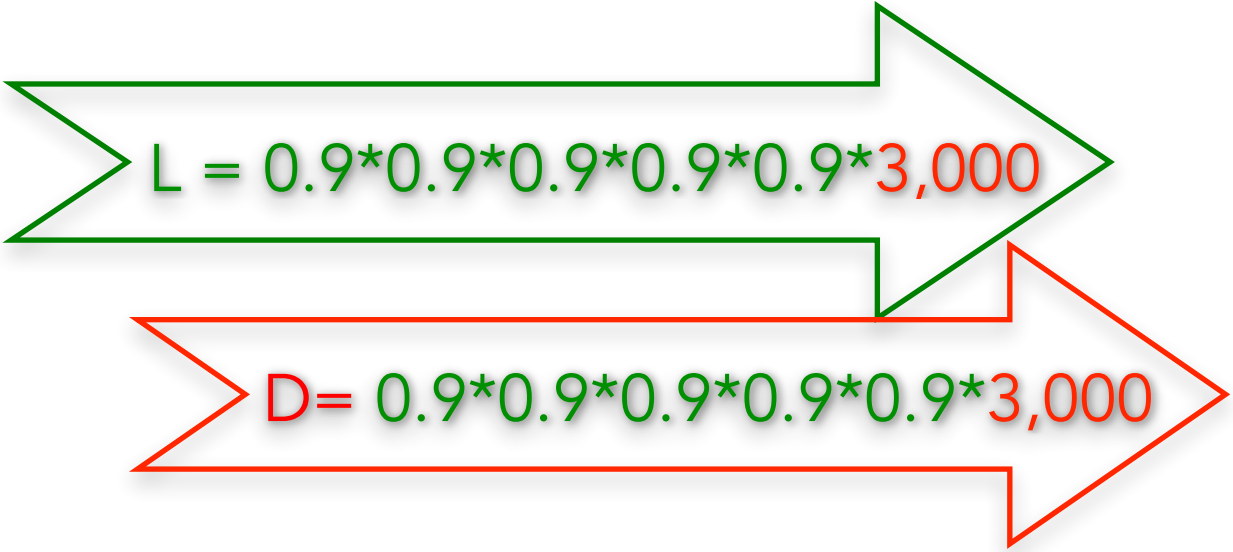
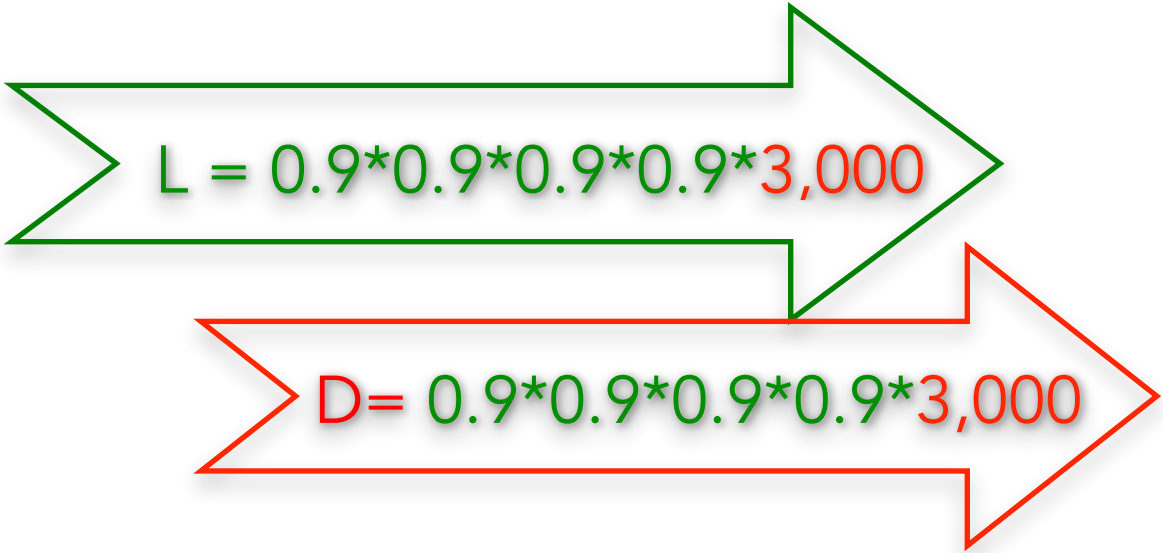

L = 0.9*0.9*0.9*0.9*0.9*3,000
D= 0.9*0.9*0.9*0.9*0.9*3,000

$$D = 0.9*0.9*0.9*0.9*3{,}000$$


L = 0.9*0.9*0.9*0.9*3,000
D= 0.9*0.9*0.9*0.9*3,000

$$D = 0.9*0.9*0.9*0.9*0.9*3{,}000$$


3,000


+0.9*3,000

Loans become

Deposits

+ 0.9*0.9*3,000

+ 0.9*0.9*0.9*3,000

+ 0.9*0.9*0.9*0.9*3,000

$$+ \quad 0.9*0.9*0.9*0.9*0.9*3{,}000$$

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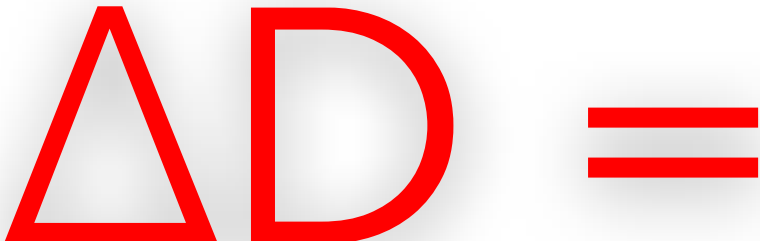
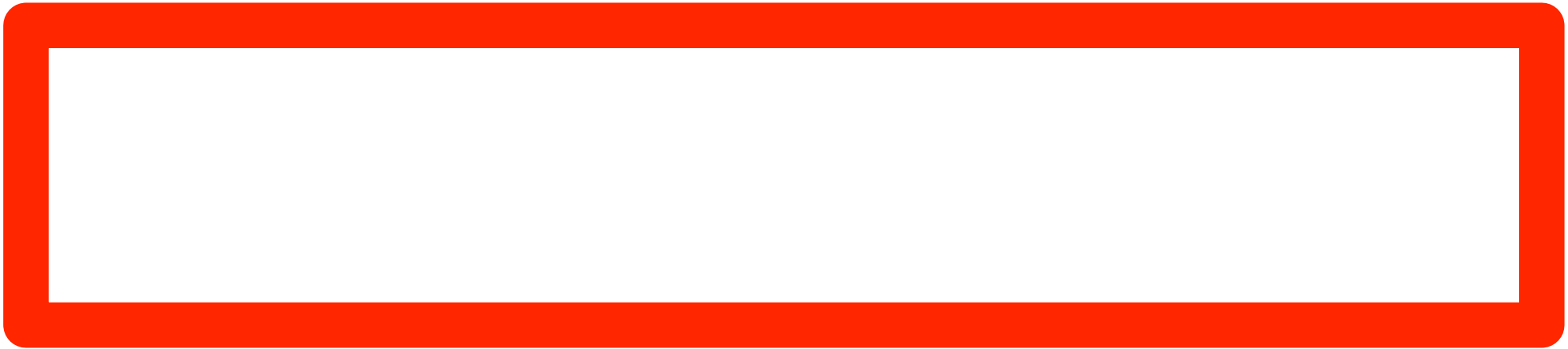
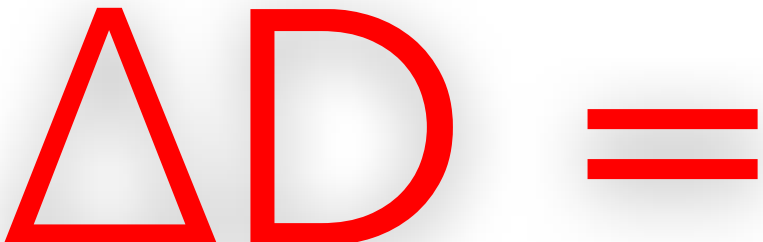


Total new Deposits in all checking accounts





Factor out 3,000

3,000 (1

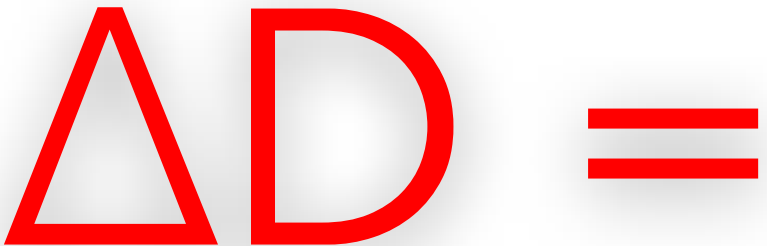
+ 0.9

$$+ \ 0.9 * 0.9$$

+ 0.9*0.9*0.9

+ 0.9*0.9*0.9*0.9*0.9

+ 0.9*0.9*0.9*0.9*0.9



3,000 (1

+ 0.9

$+0.9^2$

$$+ \ldots 0.9^{n})$$

$+0.9^3$

$+0.9^{4}$

$+0.9^5$

$+0.9^{6}$

$\Delta D = 3{,}000$


1
1 - 0.9

$\Delta D = 3{,}000\ (10)$

$\Delta D = 30{,}000$ billion

A 3,000 injection of new money into the banking system, has the potential to increase total balances in deposit accounts by 30,000 billion


Is that a lot?

Banks are allowed to lend **90%** of Deposits

Banks are allowed to lend **90%** of Deposits

Banks are allowed to lend **90%** of Deposits

This large sum of terms equals

Δ is the symbol we will use for "change in"

Let’s calculate first Total new Deposits generated by the new money: **ΔD**

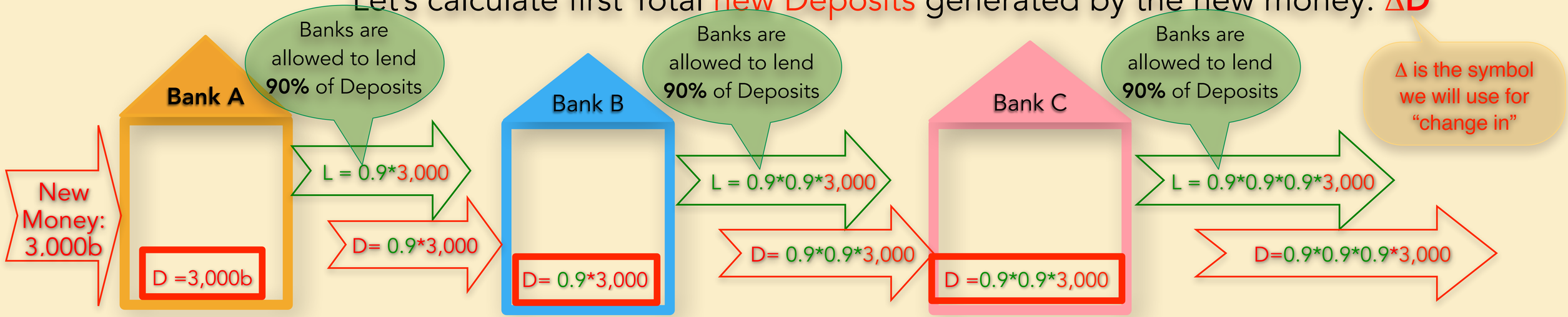
$$D = 0.9 * 3{,}000$$

$$D = 0.9 * 0.9 * 3{,}000$$

$$D=0.9*0.9*0.9*3{,}000$$

+… this process continues for several rounds

Let's calculate first Total new Deposits generated by the new money: ΔD



Total new Deposits in all checking accounts

$$\Delta D = 3{,}000 + 0.9*3{,}000 + 0.9*0.9*3{,}000 + 0.9*0.9*0.9*3{,}000 + 0.9*0.9*0.9*0.9*3{,}000 + 0.9*0.9*0.9*0.9*0.9*3{,}000$$

+… this process continues for several rounds

Factor out 3,000

$$\Delta D = 3{,}000\,(1 + 0.9 + 0.9*0.9 + 0.9*0.9*0.9 + 0.9*0.9*0.9*0.9 + 0.9*0.9*0.9*0.9*0.9 + \ldots)$$

$$\Delta D = 3{,}000\,(1 + 0.9 + 0.9^2 + 0.9^3 + 0.9^4 + 0.9^5 + 0.9^6 + \ldots 0.9^n)$$

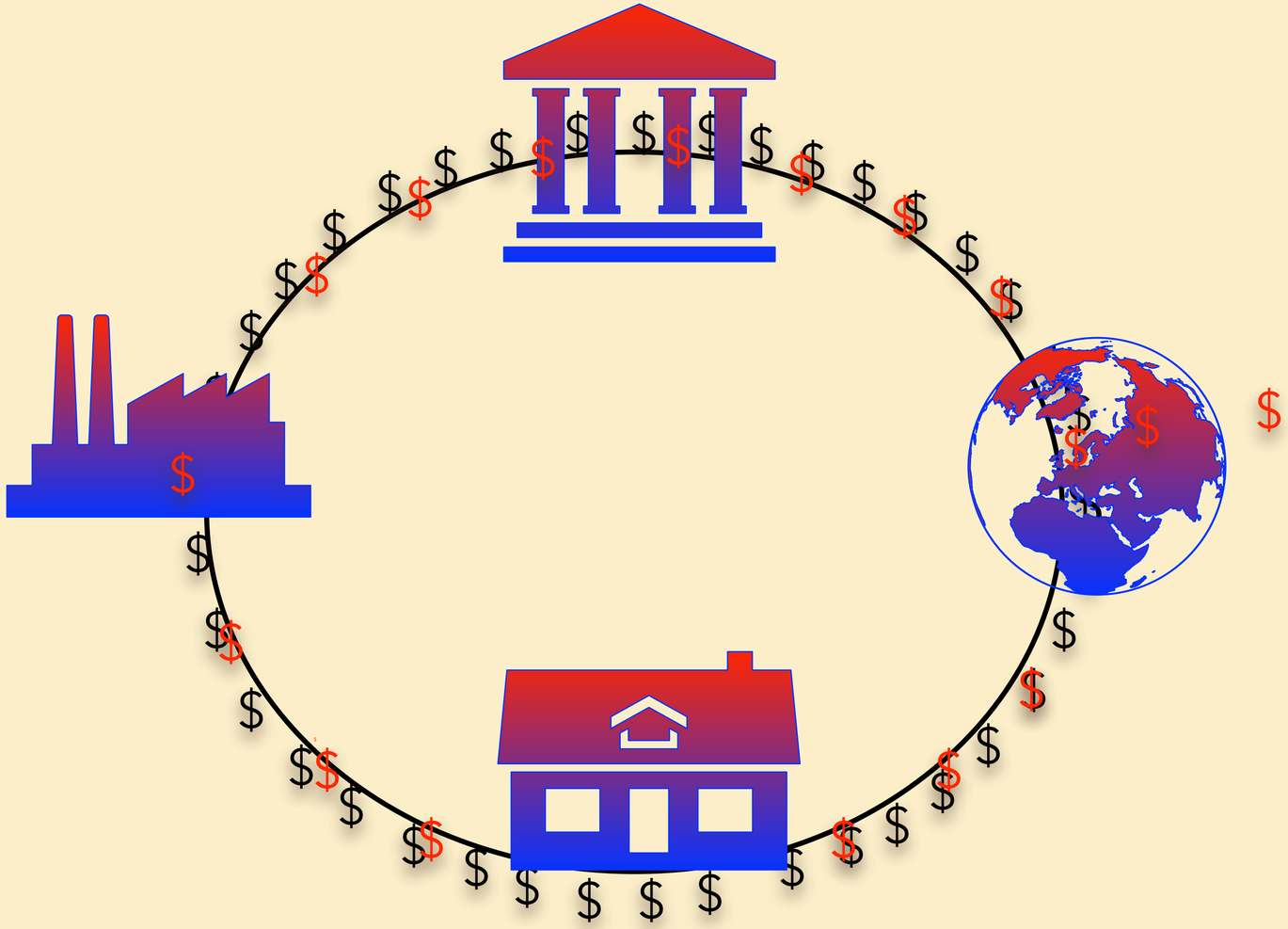
$$\Delta D = 3{,}000 \left(\frac{1}{1 - 0.9}\right)$$

$$\Delta D = 3{,}000\,(10)$$

$$\Delta D = 30{,}000 \text{ billion}$$

Is that a lot?

A 3,000 injection of new money into the banking system, has the potential to increase total balances in deposit accounts by 30,000 billion



The Federal Reserve Bank creates new money