Resource's Formula Explained

As in 🧮 **Resource's Calculator**, you can found that it can calculate accurate value of production with minimal errors. So this page will help you understand the math behind it.

Main 5's City Production

Parameter

Resource type, Buildings, Population, Morale, City State and Hidden

Resource type

Each resource will have it own **base production**
These values will later be multiplied by others.

2100	1800	2100	1500	1200

Buildings

This only concern "Resource Productions" part of the building's features. Arms Industry, Air Base and Naval bases have this feature. These **'modifier'** values will be added together then turned into **'multipliers'**.

Arms Industry

Level	1	2	5
Hit Points	10	15	30
Resource Production	+10%	+20%	+50%
Flat Resource Bonus	+100	+135	+200

Population

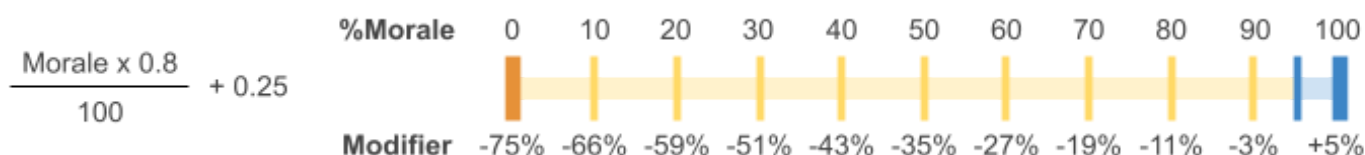| Population	1	2	3	4	5	6	7	8	9	10
Modifier	-80%	-60%	-40%	-20%	-	+5%	+10%	+15%	+20%	+25%

> ℹ️ Noted that Buildings and Population have intermediate value,
> In between the level or HP the "Resource Productions" is shifted linearly.
>
> **Example**
> - 7/10 HP Arms Industry = +7% instead of +10
> - 5.5 Population = +2.5% instead of +5%

Morale

Will apply multiplier resulting from the following formula

$$\frac{\text{Morale} \times 0.8}{100} + 0.25$$

%Morale	0	10	20	30	40	50	60	70	80	90	100
Modifier	-75%	-66%	-59%	-51%	-43%	-35%	-27%	-19%	-11%	-3%	+5%

City State

State	Homeland	Annexed	Occupied
Modifier	-	-50%	-75%

Hidden

Some cities or in specific maps have these hidden multipliers.

Known Example

- 4x speed game, all city & province will be multiplied by '3/4'
- 10x speed game, all city & province will be multiplied by '1/2'
- Washingtan D.C. and Portland city of USA in WW3 will be multiplied by '2/3'
- Minsk city of Belarus in WW3 will be multiplied by '4/3'
- in USA Battleground, All Unplayable AI country will be multiplied by '2/3'
- All fuel city in Blood & Oil will be multiplied by '2/3'

Overview and Example

Now after all parameters are introduced, let's do a run on calculation!

Setting:
Supply Homeland city with 82% Morale, 4.3 Population, Lv3 Arms Industry, Lv3 Naval Port.

2100 x1.40 x0.86 x0.91 x1.00

2300.844

The City will produce
2,300 Supply per day
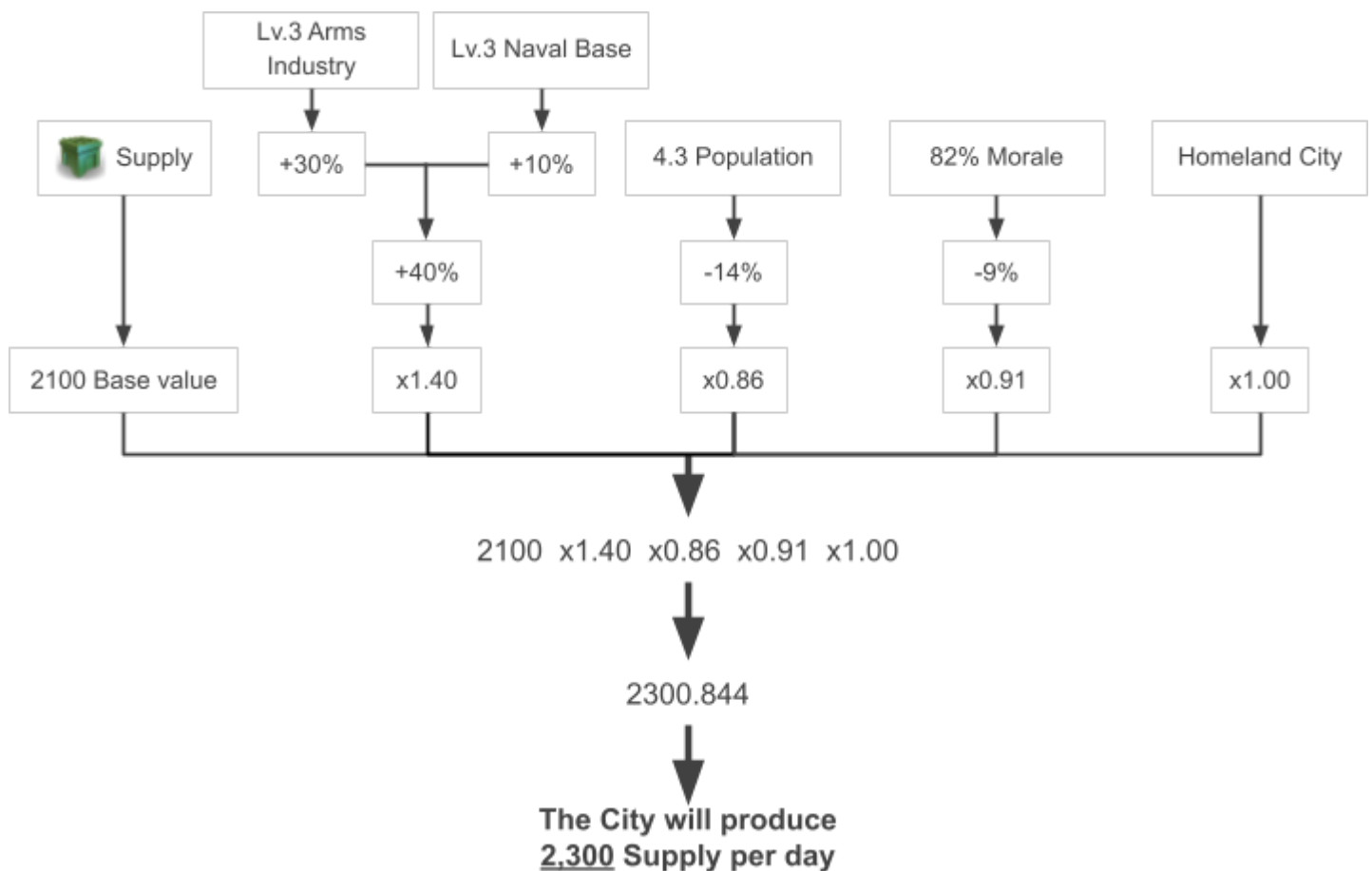
Trivial

start resources: 20,000 supply, 15,000 component, 7500 fuel, 5500 electric, 5500 rare mat, 7500 man power, 75000 money