How to be a Math Wizard - Third Edition

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This document is an update to the previous "How to be a Math Wizard - Second Edition." Changes include the addition of level 80 formulae, secondary attribute formulae, the addition of level correction, restructuring of formulas, and order of operations for direct damage. **Since the last revision, we have seen nascent DPS spreadsheets and gear optimization tools. These will be linked in the resources section of this document**. We have also included level correction and a Misc. information section to cover weaponskills, spells, and abilities that require further explanation. Lastly, **we have rebranded and opened a new website** that will be linked in the resources section. Let's begin.

Notation

Table References

Final Fantasy XIV formulae rely on tables to tailor them to specific levels, jobs, and clans. That is why using the same stats across different jobs and levels will yield different results. When referencing a table value, the background will be highlighted gray. Large text will refer to the table name and the subscripts will refer to the row and column as such:

$$\text{Table Name}_{\text{[ROW], [COLUMN]}}$$

The respective tables can be found in the Final Fantasy XIV - Tables google sheet. Table names = tabs at the bottom.

Flooring and Ceiling

Flooring refers to the largest integer value less than or equal to a given value. In layman's terms, it means removing anything after the decimal. To keep formulae relatively clean, I opted to use the flooring parenthesis $\lfloor x \rfloor$.

1. Floored Value = $\lfloor 23.999 \rfloor$
2. Floored Value = 23

Ceiling is the opposite of flooring -- it is the smallest integer value greater than or equal to a given value. In other words, for positive values, round up. When ceiling is necessary, you will see the notation $\lceil x \rceil$.

1. Ceiling Value = $\lceil 23.111 \rceil$
2. Ceiling Value = 24

Redundant Flooring and Ceiling brackets

To keep long formulae clean, I opted to remove redundant left-hand flooring and ceiling brackets. It is still expected that you perform the floor or ceiling as if the extra left-hand brackets were present.

$$\text{Before: } \lfloor \lfloor \lfloor x \times y \rfloor \times z \rfloor \times w \rfloor \rightarrow \text{After: } \lfloor x \times y \rfloor \times z \rfloor \times w \rfloor$$

Parameters

Main Attributes

Your character's base attributes are determined by your base determination, job attribute modifier, and your clan. In the following equation, all instances of "Attribute" should be replaced with the attribute you want to solve. For example, if you are solving for your character's base strength, then replace all instances of "Attribute" with "Strength." **Despite removing main stat bonuses from the traits window, players still retain these traits at their respective Stormblood levels**. **At Lv. 60+, your character gains +48 main stat as a "Trait."**

$$\text{Attribute} = \lfloor \text{Level}_{\text{Lv, MAIN}} \times \text{Job}_{\text{Job, Attribute}} /100 \rfloor + \text{Clan}_{\text{Clan, Attribute}} + \text{Traits} \rfloor \times \text{PT Bonus} \rfloor \times \text{Food and Potions} \rfloor$$

Total HP [1]

Your character's total HP is determined by your level's base HP, your job's HP modifier, your base Determination, and your vitality. Tanks receive more HP per vitality due to their Tank Mastery trait.

$$\text{HP} = \lfloor \text{Level}_{\text{Lv, HP}} \times \text{Job}_{\text{Job, HP}} /100 \rfloor + \lfloor (\text{VIT} - \text{Level}_{\text{Lv, MAIN}}) \times 22.1 \rfloor$$

$$\text{Tank HP} = \lfloor \text{Level}_{\text{Lv, HP}} \times \text{Job}_{\text{Job, HP}} /100 \rfloor + \lfloor (\text{VIT} - \text{Level}_{\text{Lv, MAIN}}) \times 31.5 \rfloor$$

MP Recovery via Abilities

Your character's MP return from skills, such as Energy Drain and Refresh, depends on the skill's potency and your level's MP modifier.

$$\text{MP Returned} = \lfloor \text{Potency} \times 10000 / 1000 \rfloor$$

MP per Tick

$$\text{MP per tick}^{2} = \lfloor 150 \times (\text{PIE} - \text{Level}_{\text{Lv, MAIN}}) / \text{Level}_{\text{Lv, DIV}} \rfloor + 200$$

[1] This formula *only* applies to level 80
[2] PIE only affects healers

Block Probability

The probability of blocking is determined by your Block Rate and level. No change in 5.0.

$$p(BLK) = \lfloor 30 \times \text{Block Rate} / \text{Level}_{\text{Lv, DIV}} \rfloor + 10$$

Direct Hit Probability

The probability of a Direct Hit occurring depends on your Direct Hit (DH) and level. Direct hits increase damage by 25%. No change in 5.0.

$$p(DH) = \lfloor 550 \times (\text{DH} - \text{Level}_{\text{Lv, SUB}}) / \text{Level}_{\text{Lv, DIV}} \rfloor / 10$$

Critical Hit Probability

The probability of a Critical Hit occurring depends on your Critical Hit (CRIT) and level. No change in 5.0.

$$p(CRIT) = \lfloor 200 \times (\text{CRIT} - \text{Level}_{\text{Lv, SUB}}) / \text{Level}_{\text{Lv, DIV}} + 50 \rfloor / 10$$

Functions

In the previous document, we multiplied a series of decimal form variables against each other. In our newest revision of the formula, *we found better accuracy when each function produced a whole integer instead of a decimal value*. For this reason, formulas will look slightly different from their “How to be Math Wizard - Second Edition” variation.

Functions are arbitrarily named components used in large formulas. For example, if you look at the formula below:

$$\text{Damage} = \lfloor \text{Potency} \times f(\text{DET}) \times f(\text{AP}) \rfloor / 100 \rfloor / 1000 \rfloor$$

Everything listed as f(x) is considered a function. These components are often used across multiple formulas, so it is easier to reference them as their own equation.

Weapon Damage: f(WD)

Function of weapon damage is the contribution of your weapon's damage rating. It includes your base determination, your job's attribute modifier, and your weapon's *Physical Damage* or *Magic Damage* rating. The attribute used for your job's attribute modifier depends on whether the action uses your Attack Power, Magic Attack Potency, or Healing Magic Potency and what attribute affects that property. For example, a Summoner's Physick uses Healing Magic Potency. Summoner's MND affects Healing Magic Potency; therefore, MND is the job attribute modifier.

Like your attribute modifier, the weapon damage you select depends on whether the action uses *Attack Power*, *Attack Magic Potency*, or *Healing Magic Potency*. If it uses *Attack Power*, then you use the weapon's *Physical Damage*. Otherwise, you use the *Magic Damage*. So when an Astrologian auto-attacks, they are using the hidden *Physical Damage* stat on their weapon. Why? Auto-attacks use *Attack Power*. All weapons have a Physical and Magical Damage value even though one of them is hidden.

$$f(WD) = \lfloor \left(\text{Level}_{\text{Lv, MAIN}} \times \text{Job}_{\text{Job, Attribute}} / 1000 \right) + WD \rfloor$$

Attack: f(ATK)

Function of Attack is the contribution of either your *Attack Power* (AP) or *Magic Attack Potency* (MAP). In the following formulas, replace AP with MAP if applicable. Furthermore, Tank Mastery, despite its wording, decreases this value.

Lv. 80:

$$f(ATK) = \lfloor 165 \times (AP - 340) / 340 \rfloor + 100$$

Lv. 51-70:

$$f(ATK) = \lfloor (\text{Level} - 50) \times 2.5 + 75 \rfloor \times (AP - \text{Level}_{\text{Lv, MAIN}}) / \text{Level}_{\text{Lv, MAIN}} \rfloor + 100$$

Lv. 1-50:

$$f(ATK) = \lfloor 75 \times (AP - \text{Level}_{\text{Lv, MAIN}}) / \text{Level}_{\text{Lv, MAIN}} \rfloor + 100$$

Tanks **Lv. 80**:

$$f(ATK) = \lfloor 115 \times (AP - 340) / 340 \rfloor + 100$$

Determination: f(DET)

Function of Determination is your total Determination's contribution to damage and healing output as a rational number (Rather than percentage). Its value will never exceed three decimal places.

$$f(DET) = \lfloor 130 \times (DET - Level_{Lv,\ MAIN})/ Level_{Lv,\ DIV} + 1000 \rfloor$$

Tenacity: f(TNC)

Function of Tenacity is the impact of your character's total Tenacity towards damage, mitigation, and healing. Your character's total Tenacity and level affect this multiplier. Its final value will never exceed three decimal places.

$$f(TNC) = \lfloor 100 \times (TNC - Level_{Lv,\ SUB})/ Level_{Lv,\ DIV} + 1000 \rfloor$$

Speed: f(SPD)

Function of Speed is the bonus granted by Skill Speed or Spell Speed in decimal form. It is commonly associated with your GCD, auto-attacks, and damage-over-time actions. Your character's total Skill Speed or Spell Speed and level affect this multiplier. Its final value will never exceed the thousandths three decimal places.

$$f(SPD) = \lfloor 130 \times (SS - Level_{Lv,\ SUB})/ Level_{Lv,\ DIV} + 1000 \rfloor$$

Critical Hit Damage: f(CRIT)

Function of Critical Hit is the bonus granted by landing a critical hit [3]. The value of this bonus depends on your Critical Hit and level. This number will return 1400+ and you might think you did something wrong, but that is actually the number you want. During damage calculation, you will divide this number by 1000, so it will become a multiplier you are familiar with. If you want to know that multiplier beforehand, just divide the result by 1000.

$$f(CRIT) = \lfloor 200 \times (CRIT - Level_{Lv,\ SUB})/ Level_{Lv,\ DIV} + 1400 \rfloor$$

[3] At this time, it is assumed that bonus is the same for both damage and healing

Defense: f(DEF) and f(MDEF)

Function of Defense determines how much damage you mitigate through Defense and Magic Defense. It is affected by your Defense or Magic Defense and your character's level. Its final value will never exceed two decimal places.

$$f(DEF) = \lfloor 15 \times Defense / Level_{Lv,\ DIV} \rfloor$$

$$f(MDEF) = \lfloor 15 \times Magic\ Defense / Level_{Lv,\ DIV} \rfloor$$

Block Strength: f(BLK)

Function of Block Strength is the percent of damage your block mitigates. You can see this value in your flying text, but this formula will predict that value without having to test a given shield. In 5.0, the multiplier for Block Strength was halved from thirty to fifteen.

$$f(BLK) = \lfloor 15 \times Block\ Strength / Level_{Lv,\ DIV} \rfloor + 10$$

Auto-Attacks: f(AUTO)

Function of Auto-attacks incorporates your weapon's delay, as a decimal multiplier, to either increase or decrease the damage dealt by auto-attacks. Your level, job attribute modifier, your weapon damage, and your weapon delay affect this value. Its structure is similar to that of f(WD), but includes a weapon delay component. The attribute selected for $Job_{Job,\ Attribute}$ depends on the attribute that affects your "Attack Power." For most jobs, "Strength" affects your "Attack Power", but notable exceptions include Bard, Ninja, Dancer, and Machinist.

$$f(AUTO) = \lfloor (\lfloor Level_{Lv,\ MAIN} \times Job_{Job,\ Attribute} / 1000) + WD \rfloor \times (Weapon\ Delay / 3) \rfloor$$

Healing Magic Potency: f(HMP)

Function of Healing Magic Potency the multiplier through which your Healing Magic Potency affects your healing output. In 5.0, f(HMP) was reduced, so heals are technically weaker *ceteris paribus*.

Lv. 80:

$$f(HMP) = \lfloor 100 \times (HMP - 340) / 304 \rfloor + 100$$

Lv. 70:

$$f(HMP) = \lfloor 100 \times (HMP - 292) / 264 \rfloor + 100$$

Damage Dealt

In the previous section, we covered numerous functions. From here on, we will incorporate those functions into equations. Since these formulas are long, we will break them down into more digestible chunks. Of importance is that our testing seems accurate at normal to high damage values, but we have seen errors when we use almost no Attack Power + Low Potency DoT + Small amount of DET. This will not affect standard gameplay, but it is important for testing purposes.

Level Correction

When your level is lower than the target's level, you deal 2.5% less damage per difference in level. If there is a cap to this reduction, it has not shown within 30 levels. There is also an accuracy penalty of unknown value when below the target's level.

Direct Damage (D) [4]

$$\mathbf{D_1} = \lfloor \text{Potency} \times f(\text{ATK}) \times f(\text{DET}) \rfloor / 100 \rfloor / 1000 \rfloor$$

$$\mathbf{D_2} = \lfloor D_1 \times f(\text{TNC}) \rfloor / 1000 \rfloor \times f(\text{WD}) \rfloor / 100 \rfloor \times \text{Trait} \rfloor / 100 \rfloor$$

$$\mathbf{D_3} = \lfloor D_2 \times \text{CRIT?} \rfloor / 1000 \rfloor \times \text{DH?} \rfloor / 100 \rfloor$$

$$\mathbf{D} = \lfloor D_3 \times \text{rand}[95,105] \rfloor / 100 \rfloor \times \text{buff\_1} \rfloor \times \text{buff\_2} \rfloor$$

There is a lot to unpack here! The first thing to notice is that this string of formulas could just be combined into one formula, but it is easier to read when partitioned as such. Most of this formula is straightforward, but there are a few question mark notations that have not been explained. These question marks indicate that the value of that variable changes based on a random event.

CRIT?: If you do not critical hit, CRIT? = 1000. If you critical hit, CRIT? = f(CRIT).

DH?: If you do not direct hit, DH? = 100. If you direct hit, DH? = 125

rand[95,105]: A random value between, and including, 95 to 105.

Since buffs are multiplied against each other, it is technically better to stack them when possible. For example, if you have two 30% damage increasing buffs (1.3 × 1.3), you will increase your damage by 69% instead of 60%.

[4] When applicable, replace f(ap) with f(map) for actions that use magic attack power

Damage-Over-Time[5]

Physical

$$\mathbf{D_1} = \lfloor \text{Potency} \times f(\text{ATK}) \times f(\text{DET}) \rfloor / 100 \rfloor / 1000 \rfloor$$

$$\mathbf{D_2} = \lfloor D_1 \times f(\text{TNC}) \rfloor / 1000 \rfloor \times f(\text{SPD}) \rfloor / 1000 \rfloor \times f(\text{WD}) \rfloor / 100 \rfloor \times \text{Trait} \rfloor / 100 \rfloor + 1$$

$$\mathbf{D_3} = \lfloor D_2 \times \text{rand}[95,105] \rfloor / 100 \rfloor$$

$$\mathbf{D} = \lfloor D_3 \times \text{CRIT?} \rfloor / 1000 \rfloor \times \text{DH?} \rfloor / 100 \rfloor \times \text{buff\_1} \rfloor \times \text{buff\_2} \rfloor$$

Magical

$$\mathbf{D_1} = \lfloor \text{Potency} \times f(\text{WD}) \rfloor / 100 \rfloor \times f(\text{ATK}) \rfloor / 100 \rfloor \times f(\text{SPD}) \rfloor / 1000 \rfloor$$

$$\mathbf{D_2} = \lfloor D_1 \times f(\text{DET}) \rfloor / 1000 \rfloor \times f(\text{TNC}) \rfloor / 1000 \rfloor \times \text{Trait} \rfloor / 100 \rfloor + 1$$

$$\mathbf{D_3} = \lfloor D_2 \times \text{rand}[95,105] \rfloor / 100 \rfloor$$

$$\mathbf{D} = \lfloor D_3 \times \text{CRIT?} \rfloor / 1000 \rfloor \times \text{DH?} \rfloor / 100 \rfloor \times \text{buff\_1} \rfloor \times \text{buff\_2} \rfloor$$

Compared to direct damage, damage-over-time (physical) has three differences. The first difference is that it includes f(SPD) in its damage calculations. The placement of f(SPD) is unconfirmed since DoT order of operations has been troublesome to pinpoint. The second difference is that its randomization component applies before critical hit and direct hit bonuses [6]. Third, there is a +1 to damage before randomization, critical hit, direct hit, or buffs occur.

[5] DoT order of operation is difficult to pin down. In 4.0, Shadowflare and Bio/Miasma generates different damage values despite all of these having the same potency. Between jobs, the formula seems to change as well. This is our best interpretation of 5.0 DoT samples.

[6] This was deduced by recording a direct damage parse (~80k samples) and listing each unique damage value. For direct damage, the number of unique entries for critical hit and direct hit exceeded the number of normal hit entries. For damage-over-time, the number of unique entries were equal across critical hit, direct hit, and normal hits.

Auto-Attacks

$$\mathbf{D_1} = \lfloor \text{Potency} \times f(\text{ATK}) \times f(\text{DET}) \rfloor / 100 \rfloor / 1000 \rfloor$$

$$\mathbf{D_2} = \lfloor D_1 \times f(\text{TNC}) \rfloor / 1000 \rfloor \times f(\text{SPD}) \rfloor / 1000 \rfloor \times f(\text{AUTO}) \rfloor / 100 \rfloor \times \text{Trait} \rfloor / 100 \rfloor$$

$$\mathbf{D_3} = \lfloor D_2 \times \text{CRIT?} \rfloor / 1000 \rfloor \times \text{DH?} \rfloor / 100 \rfloor$$

$$\mathbf{D} = \lfloor D_3 \times \text{rand}[95,105] \rfloor / 100 \rfloor \times \text{buff\_1} \rfloor \times \text{buff\_2} \rfloor$$

Auto-attacks essentially take the form of Direct Damage with two exceptions: 1) Like, DoT, they incorporate f(SPD) 2) they replace f(WD) with f(AUTO). The potency of melee attacks is 110 potency. The potency of shots is 100 potency. Note that Dancers use melee attacks instead of shots. [7]

[7] Tests done by LePaw van Effectrix and Fürst#4041 confirmed this finding.

Damage Taken

The primary difference between physical and magical damage taken is the substitution of f(def) for f(mdef) and elemental resistance (Not shown). Even though Square Enix removed elemental resistance from the character window and equipment, it is still a relevant stat. Encounters, such as Ultimate Coil and Ultima, use elemental resistance to punish players when they incorrectly perform a mechanic. The actual order of operations is untested, but the general idea is still relevant.

Physical Damage Taken

$$\mathbf{PDT_1} = \lfloor \text{Raw Damage} \times (100 - f(DEF)) \rfloor / 100 \rfloor$$

$$\mathbf{PDT_2} = \lfloor PDT_1 \times (2000 - f(TNC)) \rfloor / 1000 \rfloor$$

$$\mathbf{PDT_3} = \lfloor PDT_2 \times (100 - f(BLK)) \rfloor / 100 \rfloor$$

$$\mathbf{PDT} = \lfloor PDT_3 \times \text{rand}[95,105] \rfloor / 100 \rfloor \times (1 - buff\_1) \rfloor \times (1 - buff\_2) \rfloor$$

Magical Damage Taken

$$\mathbf{MDT_1} = \lfloor \text{Raw Damage} \times (100 - f(MDEF)) \rfloor / 100 \rfloor$$

$$\mathbf{MDT_2} = \lfloor MDT_1 \times (2000 - f(TNC)) \rfloor / 1000 \rfloor$$

$$\mathbf{MDT_3} = \lfloor MDT_2 \times (100 - f(BLK)) \rfloor / 100 \rfloor$$

$$\mathbf{MDT} = \lfloor MDT_3 \times \text{rand}[95,105] \rfloor / 100 \rfloor \times (1 - buff\_1) \rfloor \times (1 - buff\_2) \rfloor$$

Healing

Direct Heals

$\mathbf{H_1} = \lfloor \text{Potency} \times f(\text{HMP}) \times f(\text{DET}) \rfloor / 100 \rfloor / 1000 \rfloor$

$\mathbf{H_2} = \lfloor H_1 \times f(\text{TNC}) \rfloor / 1000 \rfloor \times f(\text{WD}) \rfloor / 100 \rfloor \times \text{Trait} \rfloor / 100 \rfloor$

$\mathbf{H_3} = \lfloor H_2 \times \text{CRIT?} \rfloor / 1000 \rfloor$

$\mathbf{H} = \lfloor H_3 \times \text{rand}[97,103] \rfloor / 100 \rfloor \times \text{buff\_1} \rfloor \times \text{buff\_2} \rfloor$

The Direct Heals formula looks similar to Direct Damage with f(HMP) substituting for f(ATK) and DH? removed. Furthermore, randomization range is reduced from +-5% to +-3%. Tenacity only affects outgoing heals from tanks; it does not affect incoming heals on tanks.

Healing-Over-Time[8]

$\mathbf{H_1} = \lfloor \text{Potency} \times f(\text{HMP}) \times f(\text{DET}) \rfloor / 100 \rfloor / 1000 \rfloor$

$\mathbf{H_2} = \lfloor H_1 \times f(\text{TNC}) \rfloor / 1000 \rfloor \times f(\text{SPD}) \rfloor / 1000 \rfloor \times f(\text{WD}) \rfloor / 100 \rfloor \times \text{Trait} \rfloor / 100 \rfloor$

$\mathbf{H_3} = \lfloor H_2 \times \text{rand}[97,103] \rfloor / 100 \rfloor$

$\mathbf{H} = \lfloor H_3 \times \text{CRIT?} \rfloor / 1000 \rfloor \times \text{buff\_1} \rfloor \times \text{buff\_2} \rfloor$

[8] Healing-Over-Time's order of operation was tested more extensively than Direct Heals

Speed

Your final cast and recast values depend on your skill or spell speed, your level, and buffs. Due to the complexity of this formula, it has been partitioned into several parts. It is one of the few formulas to include roundup.

GCD Calculation

$$\mathbf{GCD_1} = \lfloor (2000 - f(SPD)) \times \text{Action Delay}^{9} / 1000 \rfloor$$

$$\mathbf{GCD_2} = \lfloor (100 - \sum \text{Speed Buffs}) \times (100 - \text{Haste}) / 100 \rfloor$$

$$\mathbf{GCD_3} = \lfloor GCD_2 \times GCD_1 / 1000 \rfloor \times \text{Astral\_Umbral} / 100 \rfloor$$

$$\textbf{Final GCD} = GCD_3 / 100$$

Speed Buffs

Name	**Value**
Ley Lines	15
Presence of Mind	20
Shifu	13
Blood Weapon	10
Huton	15
Greased Lightning 1/2/3/4	5, 10, 15, 20
Repertoire 1/2/3/4	4, 8, 12, 16

[9] Action Delay must be written in milliseconds. A 2.5 GCD, is equivalent to 2500 milliseconds.

Enmity

There are three types of enmity generation: Damage, Healing, and Action. Damage Enmity is enmity stemming from damage dealt to the enemy. The multiplier for actions that say, "Increased Enmity" can be found in the "Increased Enmity" tab of the *FFXIV - Tables* spreadsheet (See Resources). Healing Enmity is enmity generated by directly healing yourself or another player. Action enmity is enmity generated by performing a buff or debuff that does not deal damage or directly heal a player[10]. ∑ Status Effect M is the sum of all status effect multipliers involved. If (1 + ∑ Status Effect M) is negative, your actions will only generate 1 point of enmity. If an action has a damage and healing component, only the damage component will generate enmity. All pets relay their enmity to the master now.

Damage[11]

$$\text{Damage Threat} = \lfloor \lfloor \text{Damage} \times \text{Increased Enmity} \rfloor \times (1 + \sum \text{Status Effect M}) \rfloor$$

Healing

$$\text{Spell Threat} = \lfloor \lfloor \text{HP Restored} / 2 \rfloor \times (1 + \sum \text{Status Effect M}) \rfloor / \#\ \text{Aggroed Enemies} \rfloor$$

$$\text{Abilities Threat}[12] = \lfloor \lfloor \text{HP Restored} \times 3 / 5 \rfloor \times (1 + \sum \text{Status Effect M}) \rfloor / \#\ \text{Aggroed Enemies} \rfloor$$

Buffs and Debuffs

$$\text{Action Threat} = \lfloor \lfloor \text{Level}_{\text{Lv, THREAT}} \rfloor \times (1 + \sum \text{Status Effect M}) \rfloor / \#\ \text{Aggroed Enemies} \rfloor$$

Status Effect M Table

Status	M	*Status*	M
Shield Oath	9	Grit	9
Defiance	9	Royal Guard	9
White Mage Healing	-0.65	Astrologian Healing	-0.65
Scholar Healing (Pet included)	-0.5		

[10] This is important when examining the difference between an action like 4.0 version of Elusive Jump and Lucid Dreaming. The former will simply cut your threat in half. The latter will cut your threat in half and then add enmity from gaining a buff.
[11] If the skill does not say "Increased Enmity" replace that variable with (1).
[12] This specifically refers to skills, such as Equilibrium and Second Wind, whose primary action is healing. It does not include indirect healing through Bloodbath, Synastry, or normal healer actions

Pets

Bunshin

Bunshin receives the same racial bonus the Ninja receives. The only difference is that it has a 100 DEX modifier instead of a 110 DEX modifier. This means it begins with slightly less Attack Power and lower f(WD). Bunshin does not receive the 5% party bonus to stats. Bunshin does not receive the hidden +48 main stat bonus. And it uses no special f(ATK).

Living Shadow

Living Shadow receives the racial stats of a midlander regardless of the Dark Knight's race. Like Bushin, it uses 100 STR modifier instead of a 105 STR modifier. Its attacks are always 300 potency. Unlike the Dark Knight, it is unaffected by Tank Mastery, so it uses non-tank f(ATK). Living Shadow does not receive the 5% party bonus to stats. Living Shadow does not receive the hidden +48 VIT bonus.

Automaton Queen

Automaton Queen does not receive any racial stat bonus. Like Bushin, she uses 100 DEX modifier instead of a 115 DEX modifier. She does receive the damage bonus from Action Damage trait. She does not receive the 5% party bonus to stats. Automaton Queen does not receive the hidden +48 main stat bonus. And she uses no special f(ATK).

SMN Pets

Summoner's pet damage formula is the one with the biggest difference to the ingame observed value. Summoner's pets do not receive any racial stat bonus. Like Bushin, they use a 100 INT modifier instead of 115 INT modifier. They do receive the damage bonus from the Magic and Mend trait. They receive a hidden x0.8 trait. They do not receive the 5% party bonus to stats. They do not receive the hidden +48 main stat bonus. Their f(ATK) is adjusted to the following:

Lv. 80:

$$f(ATK) = \lfloor 180 \times (AP(Pet) - 340) / 340 \rfloor + 100$$

SCH Pets

Scholar's pets do not receive any racial stat bonus. Like Bushin, they use a 100 MND modifier instead of 115 MND modifier. They do receive the damage bonus from the Magic and Mend trait. They receive a hidden x0.67 trait. They do not receive the 5% party bonus to stats. They do not receive the hidden +48 main stat bonus. Their f(HMP) is adjusted to the following:

Lv. 80:

$$f(HMP) = \lfloor 106 \times (HMP(Pet) - 340) / 304 \rfloor + 100$$

Earthly Star

Earthly Star receives the same racial bonus the Astrologian receives. Like Bushin, they use a 100 MND modifier instead of 115 MND modifier. They do receive the damage bonus from the Magic and Mend trait. They receive a hidden x1.04 trait. They do not receive the 5% party bonus to stats. They do not receive the hidden +48 main stat bonus.

Misc. Information

Essential Dignity

Increases to 1100 potency when at 1 HP.[13]

Spirits Within

Scales down to 100 potency when at 1 HP.

Provoke

Increases your threat to match the highest enmity player. Also deals 2000 potency worth of threat to the target. Affected by tank stance and global buffs, but is unaffected by damage-type specific buffs.

Resources

Tables and Information	**Author**
Allagan Studies Official Website	Nemekh#2808
FFXIV - Tables	Gouka#3431
Stat tiering list	Gouka#3431
Calculators	**Author**

[13] Potency increased by 100 as of 5.1

GCD Calculator	Orinx#9681
JP equipment with stat details	@dol_z_dreams
DRG Simulator	Rubixbob#5304
Red Mage, Monk, Samurai gear planner	Jahaudant#7041
DRG gear planner	Evie#1153
MCH Simulator	Shuni#5375
MCH gear and rotation calculator	Lynn#8794
BLM rotation planner	Fürst#4041
NIN Gear Planner	Kaladin#0471
SAM Gear Planner	Kaladin#0471
Tank gear calculator	Emiin#0178
SCH WHM AST gear calculator	Fürst#4041
SMN rotation calculator	Fryte Avarise#8008

Credits and Contact

Allagan Studies	https://discord.gg/rkDkxQW
	http://theoryjerks.akhmorning.com/
Admins and Moderators	Stat Weights (Dervy#5748)
	U'tyada Tia (Krindor#2341)
	Sky Ikaza (Skye#6666)
	Nemekh Kinryuu (Nemekh#2808)
	Pimoh Orinx (Orinx#9681)
Theorycrafters	Aloise Nelhah (sky#2653)
	Emiin Vanih (Emiin#0178)
	Furst Blumier (Fürst#4041)
	Gouka Mekkyaku (Gouka#3431)
	Kaladin Stormbless (Kaladin#0471)
	Sarangerel Ura (MikeMatrix#7302)
	Xenitan Scudstorm (Xenitan#0554)
	Damelia Lhea (Lhea#7581)
	Aria Placida (Aria#1823)
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Program Developers	Clorifex
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