

# AGA Tournament Category Calculator and User Manual

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## Introduction

This document describes the AGA's tournament category system, which is used to assign qualification points for tournaments such as the World Mind Sports Games and the Ing Masters. An associated spreadsheet with a calculator for awarded points is also embedded into this document. The most recent version of all documents may be found [here](#). [Top](#)

## Purposes

The primary purpose of tournament category system is to assess the strength of a tournament in terms of both the ratings of and number of players competing in a single section. This assessment is expressed in a category number, which scales with increasing tournament strength. This number is strongly controlled by the average rating of the players, but the number of players has some effect too.

The second purpose of the tournament category system is to provide qualification points for each finishing place. The points for first place are calculated in terms of the category number and number of players. Points awards for lower places are reduced by a scaling factor, which in turn depends on the average rating of players in an event's open section.

Qualification points will be used only to select players to compete in other, invitational, tournaments. The way in which the points will be used, and how they may be obtained will be defined separately for each such invitational tournament. Qualification points can be accumulated from a tournament only if it has been officially designated as a qualification tournament by the AGA. [Top](#)

## Limits

The category calculator will not accept a ratings average less than 1.1 or higher than 10.8. Nor will it accept a number of players less than 5. [Top](#)

## Mathematical Description

Tournament Category

The tournament category is given by

$$C = 2 \bar{R} + \sqrt{\log_{10}(10 P)} - 4,$$

where P is the number of players in the top division and  $\bar{R}$  is their (mean) average rating. This is rounded to one decimal place to get the “exact” tournament category, which is in turn rounded to an integer to get the tournament category,  $C_r$ .

This approach makes the category calculation heavily dependent on the average rating. The offset value of 4 set in order to force the system to start at category 1 for an event at the low end of the scale (a tournament of 5 players having an average rating of 1.1).

## Distribution of Qualification Points

Qualification points are awarded to the  $i^{\text{th}}$  placing player in the tournament according to the expression

$$A F^{i-1},$$

where

$$A = \log_{10}(20 P) + \frac{C_r + \bar{R}^{2.1}}{10}$$

and

$$F = 0.75 + \log_{10}\left(\frac{\bar{R}}{6.2}\right).$$

The exponent of  $\bar{R}$  in the definition of A ensures sufficient points for events with high average ratings, while the logarithmic function P rewards larger tournaments but still keeping the values reasonable. The decay factor, F, is constructed so that each player earns roughly 75% of the points awarded to the player placing immediately ahead of him, adjusted slightly for the strength of the tournament.

Awarded points are rounded to one decimal place, but all eligible players will be awarded a minimum of 0.01 points regardless of placing. Tied players split the relevant points, regardless of the tiebreaks used in the tournament. [Top](#)

# Calculator

This contains an embedded OpenOffice spreadsheet with a tournament category calculator. A copy of the spreadsheet may be [found on the AGA web site](#).

## Tournament Category Calculation

Avg. Rating-----> 7.93      Exact Category-----> 15.5

# of Players-----> 20      Rounded Category----> 16

Places	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Points	11.9	10.2	8.7	7.5	6.4	5.5	4.7	4.0	3.5	3.0	2.5	2.2	1.9	1.6	1.4	1.2	1.0	0.9	0.7	0.6
Slope		.86																		

To obtain a category number for your tournament, calculate the average (mean) of the ratings of the players in the open (not handicapped) section.

Enter the average and number of players above and the category will show immediately.

The points shown below apply only to specified qualification tournaments.

Note: Points are valid only for tournaments meeting all established qualification standards. These usually will include a minimum category rating.

Slope is the Percent amount of the next higher points given to the current place  
The slope increases directly but not linearly with the rating.

Points are calculated to 1 decimal place only, so a calculation less than .045 will be zero.

See [www.usgo.org](http://www.usgo.org) for details regarding any specific tournament

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