

## Math Anxiety Scale Survey Form

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Citation	<p>Bai, H., Wang, L., Pan, W., &amp; Frey, M. (2009). Measuring mathematics anxiety: Psychometric analysis of a bidimensional affective scale. <i>Journal of Instructional Psychology</i>, 36 (3), 185-193.</p> <p><a href="http://www.thefreelibrary.com/Measuring+mathematics+anxiety+psychometric+analysis+of+a...a0211235540">http://www.thefreelibrary.com/Measuring+mathematics+anxiety+psychometric+analysis+of+a...a0211235540</a></p>
Purpose	The purpose of this measure is to capture a bidimensional <del>affective</del> scale measuring mathematics anxiety with high <del>psychometric</del> quality.
Population	The scale is designed for the general adult population
Administration	<p>The scale is usually self-administered, as part of a more comprehensive questionnaire. <b>Time:</b> It requires 2-8 minutes to complete. <b>Scoring:</b> Responses are made on a 5 point scale. Sum up the responses to all items to yield the final composite score with a range from 14 to 70. For negative-affect items low scores indicate high anxiety. Reverse coded items include positive-affect items were reversed for scoring so that a high score indicates high anxiety.</p>
Description	<p>Previous research on math anxiety has shown that it is a multidimensional psychological construct that involves complex factors, such as feelings of pressure, performance inadequacy and test anxiety that interfere with the manipulation of numbers and solving math problems. The mathematics anxiety measure is intended to assess the feelings of anxiety, dread, and nervousness associated with mathematics.</p>
Reliability	<p><b>Cronbach's Alpha:</b> .91. <b>Factors: 2 factors</b> : Factor 1=negative; Factor 2=positive</p> <p>Factor structure (Construct validity). Using a set of criteria, e.g., <del>eigenvalue</del> (&gt; 1.00), scree plot, and variance explained (&gt; 60%), the exploratory factor analysis identified two factors. The two factors explained 66.7% of the total variance of the 14 items. The factor loadings ranged from .67 to .89 for the negative-affect factor and from .67 to .87 for the positive-affect factor. The substantial amount of variance explained and the significantly large loadings suggest that the 14-item bidimensional scale, MAS-R, is a valid instrument to measure mathematics anxiety with both positive and negative affects.</p>
Validity	<p>Measurement model fit. Two measurement models were conducted, one with one factor including all the 14 items and the other with two factors identified from the positive and negative theory (Kazelskis, 1998; Watson, 1988) and the explanatory factor analysis. The chi-square was [chi square] = 330.01, df = 77, for the one-factor model and [chi square] = 164.54, df = 76, for the <del>two-factor model</del>. The difference between the two chi-square model-fit indices was significant ([DELTA] [chi square] = 165.47, [DELTA]df = 1, p &lt; .001), which indicates that the two-factor model fitted to the data significantly better than the one-factor model. Therefore, the two-factor measurement model has excellent construct validity in representing mathematics</p>

two-factor measurement model has excellent construct validity in representing mathematics anxiety on a bidimensional scale.

## Strengths

Excellent psychometric properties. The instrument allows classroom teachers and school counselors to quickly administer the instrument, assess the nature, origins, and severity of math anxiety and to develop intervention strategies to mitigate its negative consequences.

- 1 I find math interesting. (Factor 2)
- 2 I get uptight during math tests.\* (Factor 1)
- 3 I think that I will use math in the future. (Factor 2)
- 4 Mind goes blank and I am unable to think clearly when doing my math test.\* (Factor 1)
- 5 Math relates to my life. (Factor 2)
- 6 I worry about my ability to solve math problems.\* (Factor 1)
- 7 I get a sinking feeling when I try to do math problems.\* (Factor 1)

## Measure

- 8 I find math challenging.\* (Factor 1)
- 9 Mathematics makes me feel nervous.\* (Factor 1)
- 10 I would like to take more math classes. (Factor 2)
- 11 Mathematics makes me feel uneasy.\* (Factor 1)
- 12 Math is one of my favorite subjects. (Factor 2)
- 13 I enjoy learning with mathematics. (Factor 2)
- 14 Mathematics makes me feel confused.\* (Factor 1)

\* Reverse coded items

## Response Format

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5= Strongly Agree