



**fam**<sup>™</sup>

**Feifer Assessment  
of Mathematics**<sup>™</sup>

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## Interpretive Report

by Steven G. Feifer, DEd, and PAR Staff

### Client Information

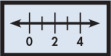


Client name: Sample Client  
Client ID : SC\_FAM-IR  
Test date : 01/27/2020  
Date of birth : 07/22/2011  
Age : 8 : 6  
Grade/Education: 3  
Gender : Female  
Examiner : PAR

This report is intended for use by qualified professionals only and is not to be shared with the student or any other unqualified persons.

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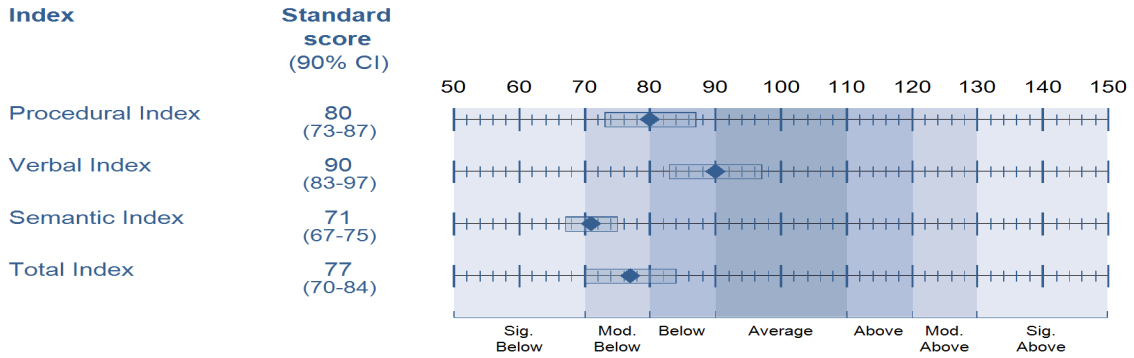
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## FAM Score Summary

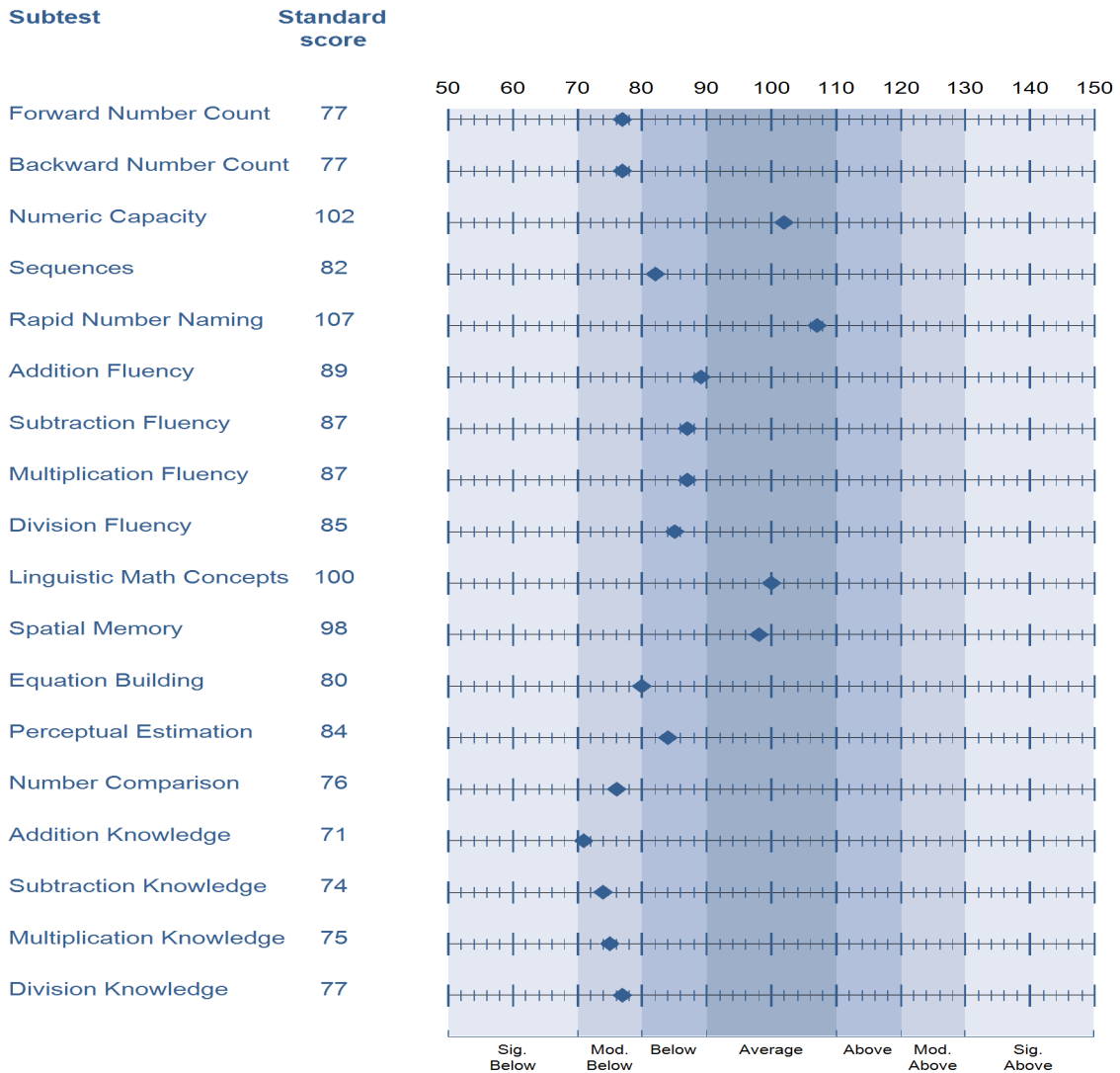
Subtest	Raw score	Standard score	Index standard score	Percentile rank
Forward Number Count (FNC)	11	77		6
Backward Number Count (BNC)	9	+ 77		6
Numeric Capacity (NCA)	8	+ 102		55
Sequences (SEQ)	15	+ 82		12
Object Counting (OC)	n/a	+ n/a		n/a
 <b>Procedural Index (PI)</b>		<b>= 338</b>	<b>80</b>	<b>9</b>
Rapid Number Naming (RNN)	57	107		68
Addition Fluency (AF)	11	+ 89		23
Subtraction Fluency (SF)	7	+ 87		19
Multiplication Fluency (MF)	6	+ 87		19
Division Fluency (DF)	2	+ 85		16
Linguistic Math Concepts (LMC)	26	+ 100		50
 <b>Verbal Index (VI)</b>		<b>= 555</b>	<b>90</b>	<b>25</b>
Spatial Memory (SM)	14	98		45
Equation Building (EB)	2	+ 80		9
Perceptual Estimation (PE)	10	+ 84		14
Number Comparison (NCO)	17	+ 76		5
Addition Knowledge (AK)	4	+ 71		3
Subtraction Knowledge (SK)	1	+ 74		4
Multiplication Knowledge (MK)	1	+ 75		5
Division Knowledge (DK)	1	+ 77		6
 <b>Semantic Index (SI)</b>		<b>= 635</b>	<b>71</b>	<b>3</b>
<b>PI + VI + SI = FAM Total Index (TI)</b>		<b>= 1528</b>	<b>77</b>	<b>6</b>

Note. “---” indicates that the value could not be calculated due to missing data. “n/a” indicates the value could not be calculated because the student’s grade falls outside the administration grade range for this subtest.

## Index Score Profile



## Subtest Score Profile



## Overview of This Report

The Feifer Assessment of Mathematics (FAM) is a diagnostic test of mathematics designed to examine the underlying neurodevelopmental processes that support the acquisition of proficient math skills. The test is composed of 19 subtests measuring various aspects of math such as fact retrieval skills, numeric and spatial memory, perceptual estimation skills, linguistic math concepts, number line fluency, and core number sense. The FAM can be administered to examinees in prekindergarten through college. The individual subtests on the FAM can be combined to yield three broad index scores: Procedural Index (PI); Verbal Index (VI); and Semantic Index (SI) as well as a FAM Total Index (TI) score. The subtests that make up the PI assess the ability to count, order, or sequence numbers and/or sequence mathematical procedures when problem solving. Lower scores on this index often suggest difficulty following an algorithm or set of math procedures when calculating longer equations not committed to rote memory. The VI comprises subtests that assess rapid number identification skills and deficits retrieving or recalling stored mathematical facts of overlearned information. Lower scores on this index do not necessarily hinder a student's conceptual understanding of math, but they do reflect an inability to encode and retrieve overlearned math facts such as single-digit addition, subtraction, multiplication, and division in an automatic fashion. The SI contains subtests designed to assess both the visual-spatial and conceptual components of mathematics. Lower scores on this index often suggest poor quantitative reasoning and weak number sense as well as difficulty applying mathematical skills to solve real-world problems. Lastly, the FAM TI score is derived by combining the PI, VI, and SI scores. It provides the most comprehensive and reliable assessment of overall math ability. Each index score is expressed as a grade-corrected standard score scaled to a mean of 100 and a standard deviation of 15.

One of the unique features of the FAM is that it assists examiners in not only determining the presence of a general mathematical learning disability, but also in determining the specific subtype of dyscalculia in order to better inform intervention decision-making. It is important to note that the FAM should not be used in isolation as a diagnostic tool. Instead, it should be used as part of a comprehensive assessment battery in conjunction with other sources of information, such as the student's developmental and academic history, curriculum-based data, previous responses to intervention, and pertinent social-emotional factors when determining the presence of a mathematical learning disability. Furthermore, not all students with a mathematical learning disability will manifest a particular dyscalculia subtype, but instead may display a more global learning deficit in mathematics. By examining converging evidence, qualified professionals can confidently arrive at a valid diagnosis and, most

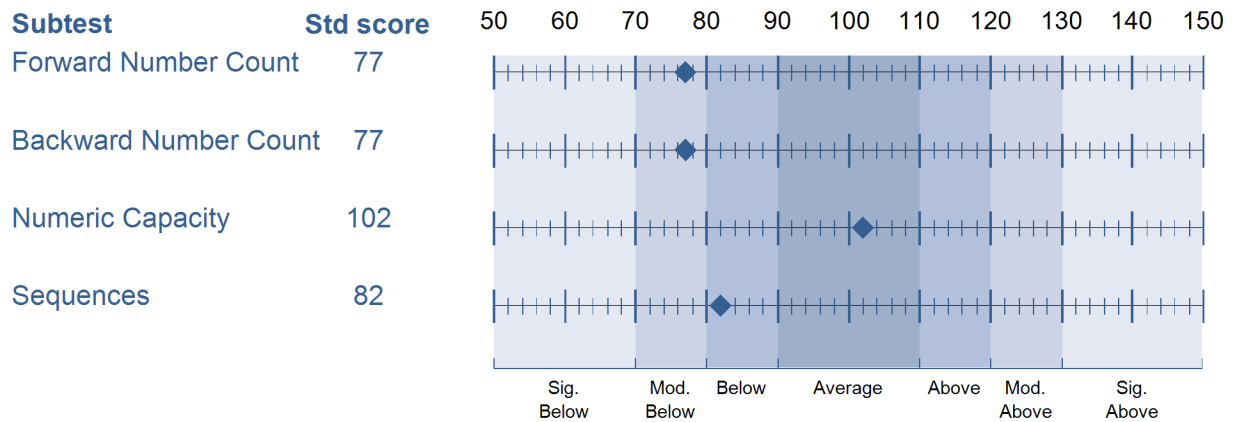
importantly, an effective treatment plan.

## Report Summary

Sample, a student in third grade, was administered the FAM on 01/27/2020. Sample's Total Index (TI) score is 77, which is in the Moderately Below Average range and is in the 6<sup>th</sup> percentile compared to her same-grade peers.

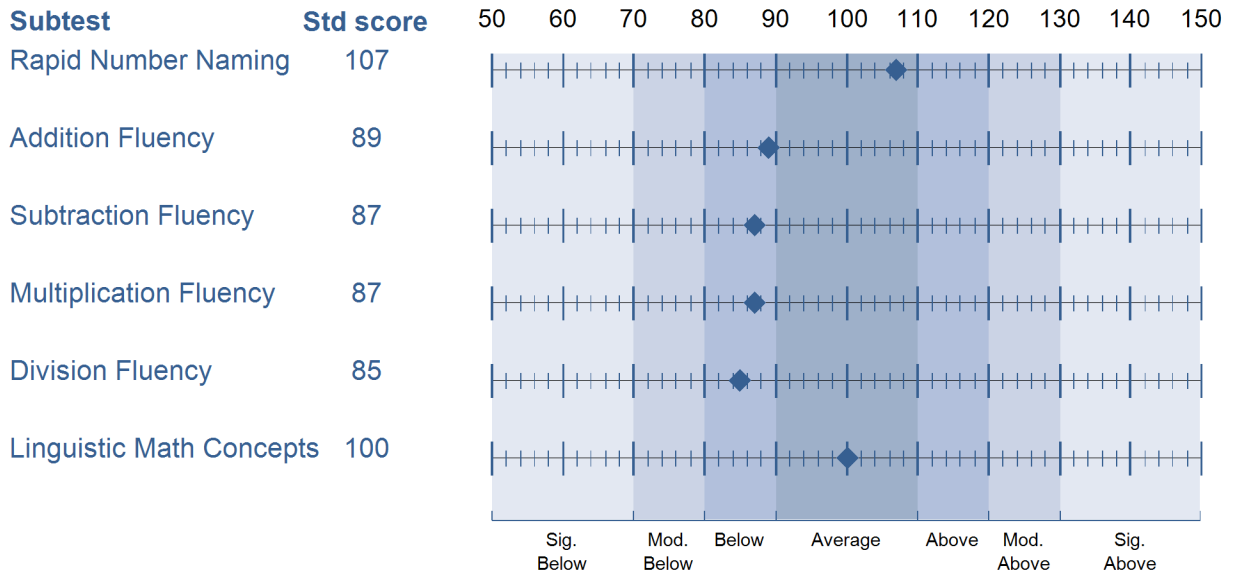
### Procedural Index

Sample received a Procedural Index (PI) score of 80, which is in the Below Average range of functioning and at the 9<sup>th</sup> percentile compared to her same-grade peers. Her individual subtest scores on the PI are as follows:



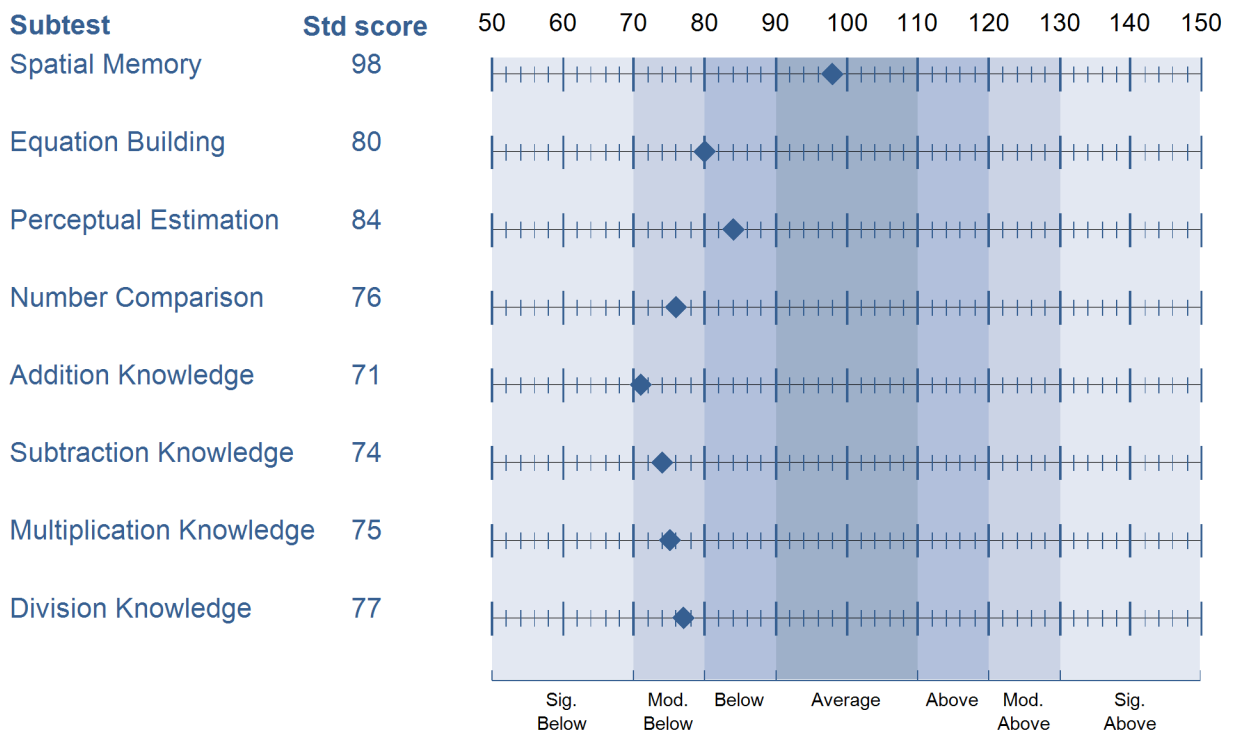
### Verbal Index

Sample received a Verbal Index (VI) score of 90, which is in the Average range of functioning, and at the 25<sup>th</sup> percentile compared to her same-grade peers. Her individual subtest scores on the VI are as follows:



## Semantic Index

Sample received a Semantic Index (SI) score of 71, which is in the Moderately Below Average range of functioning and at the 3<sup>rd</sup> percentile compared to her same-grade peers. Her individual subtest scores on the SI are as follows:



## Summary

According to the FAM, Sample presents with core overall math skills below grade-level expectations. There was evidence of global math delays, though she does not necessarily present with a specific subtype of dyscalculia. Sample has potential to make significant strides in math provided she has access to specific targeted math intervention programs.

## FAM Total Index (TI) Interpretation

In order to determine Sample's overall pattern of mathematical strengths and weaknesses, the following index comparison scores are provided. A relative strength or weakness refers to a FAM index score (PI, VI, SI) that is significantly discrepant from the FAM Total Index score. In general, relative strengths and weaknesses are used to inform intervention decision-making. Conversely, an absolute strength or weakness refers to a FAM index score (PI, VI, SI) that is one standard deviation (15 points) or more above or below the normative sample's mean score of 100. In general, an absolute weakness is required to be considered for a diagnosis of a math learning disability.

Sample's FAM TI score is 77, which indicates that her constellation of math-related processes is in the Moderately Below Average range of functioning and at the 6<sup>th</sup> percentile compared to same-grade peers. A FAM TI score in this range suggests this student's overall math skills are not as well developed as grade-level peers. In fact, this student may be at risk for a specific math learning disability and may struggle when engaged in math-related endeavors in classroom learning situations. Without specific math interventions in place, this student will most likely have difficulty meeting the academic demands and rigor of the curriculum.

## Index Interpretations

### Procedural Index (PI) Interpretation

The FAM Procedural Index (PI) is a measure of a student's ability to count, order, and sequence numbers and steps necessary to perform mathematical operations when problem solving. It is made up of several subtests measuring key mathematical-related processes including number line fluency skills, symbolic working memory, counting skills, and knowledge of patterns and sequences.

Sample's FAM PI score is 80, which indicates her compilation of procedurally related math processes is in the Below Average range of functioning and at the 9<sup>th</sup> percentile compared to same-grade peers. Students who score within this range on the PI often have weak skills in serial counting, struggle to recognize numeric patterns and relationships, and may have difficulty recalling the sequences of steps necessary to perform mathematical operations not committed to rote memory. Further, this score suggests that her procedural skills are an absolute weakness ( $PI \leq 85$ ). In other words, compared to grade-level peers, this score is more than one standard deviation below the



mean score from the normative sample. Students with deficits in procedural processing in this range are at risk for a learning disability in math consistent with procedural dyscalculia.

## **Verbal Index (VI) Interpretation**

The FAM Verbal Index (VI) is a measure of a student's understanding of math terminology as well as the ability to use language-based procedures to assist with automatic fact retrieval skills. It is made up of several subtests that do not require paper and pencil calculations but instead tap into math fact automaticity, rapid number identification skills, and math vocabulary knowledge.

Sample's FAM VI score is 90, which indicates her compilation of verbally related math processes is in the Average range of functioning and at the 25<sup>th</sup> percentile compared to same-grade peers. Students who score within this range on the VI often have good skills in rapid number identification and have a good ability to use language-based procedures to retrieve or recall stored mathematical facts.

## **Semantic Index (SI) Interpretation**

The FAM Semantic Index (SI) consists of both visual–spatial and conceptual components of mathematics. A semantic understanding of mathematics and number relationships is vital toward developing quantitative knowledge. The Semantic Index is composed of several subtests measuring visual perception and estimation skills, visual spatial working memory, quantitative reasoning, and executive functioning skills.

Sample's FAM SI score is 71, which indicates her semantic understanding of mathematical processes is in the Moderately Below Average range of functioning and at the 3<sup>rd</sup> percentile compared to same-grade peers. Scores within this range on the SI often suggest weak visual–spatial and conceptual skills and difficulties in deciphering magnitude representations among both symbolic and nonsymbolic representations of numbers. Further, this score suggests that her semantic processes are an absolute weakness ( $SI \leq 85$ ). In other words, compared to grade-level peers, this score is more than one standard deviation below the mean score from the normative sample. Students with SI scores in this range are at risk for developing a learning disability in math consistent with semantic dyscalculia. They may have difficulty deploying a particular mathematical strategy when confronted with a specific problem, struggle to self-monitor their work and check the plausibility of their results, and lack the quantitative knowledge needed to use mathematical skills to solve real-world problems

and comprehend math word problems.

## Index Discrepancies

FAM Total Index				
Standard Score: 77				
Index	Standard score	Absolute difference	Significance level	Base rate
Procedural Index (PI)	80	3	<i>ns</i>	>15%
<b>Verbal Index (VI)</b>	<b>90</b>	<b>13</b>	<b>.01</b>	<b>≤10%</b>
Semantic Index (SI)	71	6	.10	>15%

Procedural Index				
Standard score: 80				
Index	Standard score	Absolute difference	Significance level	Base rate
Verbal Index (VI)	90	10	.10	>15%
<b>Semantic Index (SI)</b>	<b>71</b>	<b>9</b>	<b>.05</b>	<b>&gt;15%</b>
Total Index (TI)	77	3	<i>ns</i>	>15%

Verbal Index				
Standard score: 90				
Index	Standard score	Absolute difference	Significance level	Base rate
Procedural Index (PI)	80	10	.10	>15%
<b>Semantic Index (SI)</b>	<b>71</b>	<b>19</b>	<b>.01</b>	<b>≤10%</b>
<b>Total Index (TI)</b>	<b>77</b>	<b>13</b>	<b>.01</b>	<b>≤10%</b>

Semantic Index				
Standard score: 71				
Index	Standard score	Absolute difference	Significance level	Base rate
<b>Procedural Index (PI)</b>	<b>80</b>	<b>9</b>	<b>.05</b>	<b>&gt;15%</b>
<b>Verbal Index (VI)</b>	<b>90</b>	<b>19</b>	<b>.01</b>	<b>≤10%</b>
Total Index (TI)	77	6	.10	>15%

Note. "---" indicates that the value could not be calculated due to missing data.

*ns* = Not significant

Discrepancies in bold are statistically significant at  $p < .05$

## FAM Total Index (TI) Discrepancy Interpretations

### Total Index vs. Procedural Index

The discrepancy between the TI score and the PI score is not statistically significant ( $p \geq .15$ ).

### Total Index vs. Verbal Index

**Sample's FAM Total Index (TI) score is in the Moderately Below Average range and her Verbal Index (VI) score is in the Average range.** There is a statistically significant discrepancy between these two scores ( $p < .01$ ), the prevalence of this discrepancy **being  $\leq 10\%$** . This represents a real clinical difference between Sample's performance on the VI and the TI with a relative strength on the VI. This difference implies that Sample has a good understanding of math terminology. In addition, she likely has little difficulty using language-based processes to facilitate automatic fact-retrieval skills. Nevertheless, Sample may have difficulty with the execution of longer mathematical problems and struggle to recall the algorithm or series of steps necessary to perform mathematical operations not committed to rote memory. This type of math profile is suggestive of weak quantitative reasoning skills due to overrelying on rote memorization of facts before a deeper appreciation of the nonsymbolic or magnitude representation of numbers has been firmly established. In summary, Sample's overall constellation of math scores suggests below-grade-level total math performance.

### Total Index vs. Semantic Index

The discrepancy between the TI score and the SI score is not statistically significant ( $p \geq .15$ ).

## Index Discrepancy Interpretations

### Procedural Index vs. Verbal Index

The discrepancy between the PI score and the VI score is not statistically significant ( $p \geq .15$ ).

### Procedural Index vs. Semantic Index

**Sample's FAM Procedural Index (PI) score is in the Below Average range and her Semantic Index (SI) score is in the Moderately Below Average range.** There is a statistically significant discrepancy between these two scores ( $p < .05$ ), the prevalence of this discrepancy being  $>15\%$ . This implies global difficulty with several areas of mathematical problem solving and indicates difficulty when counting, ordering, and determining patterns and relationships among numbers. Furthermore, Sample would be expected to have relatively poor quantitative reasoning skills using both symbolic (numerals) and nonsymbolic (magnitudes and amounts) stimuli and possess a limited conceptual understanding of basic mathematical problem-solving skills. In summary, the comparison between Sample's weak PI score and SI score suggests limited core number sense and difficulty generalizing and applying mathematical knowledge to solve real-world problems.

### Verbal Index vs. Semantic Index

**Sample's FAM Verbal Index (VI) score is in the Average range and her Semantic Index (SI) score is in the Moderately Below Average range.** There is a statistically significant discrepancy between these two scores ( $p < .01$ ), the prevalence of this **discrepancy being  $\leq 10\%$** . This represents a real clinical difference between Sample's performance on the VI and SI with a relative weakness on the SI and a relative strength on the VI. This difference implies that Sample has difficulty with quantitative reasoning skills using both symbolic (numerals) and nonsymbolic (magnitudes and amounts) stimuli. She would be expected to have weak core number sense and difficulty generalizing and applying mathematical knowledge to solve real-world problems. However, Sample possesses an adequate understanding of math terminology and has good automatic fact retrieval skills. In summary, Sample's strong VI score in comparison to a weak SI score may be suggestive of overrelying on rote memorization of symbols, facts, and equations before a deeper appreciation of the nonsymbolic or magnitudes that each number represents has been firmly established.

## Subtest Interpretations

### Procedural Index (PI)

#### Forward Number Count (FNC)

The FNC subtest requires the student to identify a number that comes after a stated number and count forward by various increments starting from a designated point along a number line. This subtest measures number line fluency (i.e., the ability to seamlessly maneuver along a number line), knowledge of counting procedures, and the syntactical arrangement of numeric codes.

Sample's FNC subtest score is 77. This indicates that her forward number counting skills are in the Moderately Below Average range and that she is performing better than only 6% of peers in the same grade. Scores within this range on the FNC subtest suggest difficulty determining the serial position of numbers by skip counting, as well as a weak understanding of arithmetic concepts. In addition, lower scores are also indicative of limited working memory skills, which are often a prerequisite for determining the syntactical arrangement of numerals. Further, this score is more than one standard deviation below the normative sample's mean score, which suggests that Sample's forward number counting skills are an absolute weakness.

#### Backward Number Count (BNC)

The BNC subtest requires the student to identify a number that comes before a stated number and count backward by various increments starting from a designated point along a number line. This subtest measures number line fluency (i.e., the ability to seamlessly maneuver along a number line) as well as knowledge of counting procedures and the syntactical arrangement of numeric codes.

Sample's BNC subtest score is 77. This indicates that her backward number counting skills are in the Moderately Below Average range and that she is performing better than only 6% of peers in the same grade. Scores in this range suggest limited working memory skills and difficulty with the mental manipulation of numbers as well as weak knowledge of arithmetic procedures and the inability to determine the serial position of numbers by skip counting. Often these students overrely on their fingers or paper and pencil when problem solving due to an inconsistent knowledge of counting procedures. Further, this score is more than one standard deviation below the normative sample's mean score, which suggests that Sample's backward number counting skills are an

absolute weakness.

### **Numeric Capacity (NCA)**

The NCA subtest requires the student to repeat a series a numbers of increasing length. This is a primary test of working memory capacity for numeric or symbolic information. It does not require the student to determine the magnitude or establish the sequence of each number, but rather to simply repeat the sequence that has been stated by the examiner.

Sample's NCA subtest score is 102. This indicates that her symbolic working memory capacity is in the Average range and that she is performing better than 55% of peers in the same grade. Scores within this range on the NCA subtest suggest good symbolic memory capacity.

### **Sequences (SEQ)**

The SEQ subtest requires the student to decipher the missing picture or number based on a particular pattern or numbers sequence. It is a measure of both deductive reasoning skills and executive functioning skills as students try to determine the underlying rule or pattern that holds the information together.

Sample's SEQ subtest score is 82. This indicates that her sequencing skills are in the Below Average range and that she is performing better than only 12% of peers in the same grade. Scores in the Below Average range on the SEQ subtest suggest weak "top-down" deductive reasoning skills. Students may struggle with the executive functioning demands of mathematics and have trouble beginning with a very broad spectrum of information and then deducing, or working their way down to a specific conclusion, based on a recognizable pattern of information. Further, this score is more than one standard deviation below the normative sample's mean score, which suggests that Sample's sequencing skills are an absolute weakness.

## **Verbal Index (VI)**

### **Rapid Number Naming (RNN)**

The RNN subtest is a timed task requiring the student to identify as many single-digit numbers as possible from an array in 30 seconds.

Sample's RNN subtest score is 107. This indicates that her rapid number naming

skills are in the Average range and that she is performing better than 68% of peers in the same grade. Scores in this range on the RNN subtest suggest a good ability to recall archived numeric information along with good attention and accurate visual scanning skills to targeted stimuli. Since the RNN subtest score is significantly higher than the AF subtest score, rote names of individual numbers are retrieved more easily than longer chains of information, such as overlearned arithmetic facts stored in a language-dependent code. Since the RNN subtest score is significantly higher than the NCO subtest score, the student is more adept at surface skills such as naming symbolic information (numerals) than developing a deeper understanding of the value or magnitude that these numbers represent.

### **Addition Fluency (AF)**

The AF subtest requires the student to solve as many simple addition problems as possible in 30 seconds without using paper or pencil. It assesses retrieval speed and automatic recall of overlearned addition facts stored in a linguistic code.

Sample's AF subtest score is 89. This indicates that her rapid addition fact retrieval skills are in the Below Average range and that she is performing better than only 23% of peers in the same grade. Scores in this range on the AF subtest suggest difficulty with math fact automaticity and rapid retrieval of basic addition facts. However, the student's ability to appreciate numeric qualities and understand mathematical concepts may not necessarily be affected. Since the AF subtest score is significantly lower than the RNN subtest score, the student has better number recognition skills than math fact retrieval skills, especially with arithmetic facts stored in a language-dependent code.

### **Subtraction Fluency (SF)**

The SF subtest requires the student to solve as many simple subtraction problems as possible in 30 seconds without using paper or pencil. It assesses retrieval speed and automatic recall of overlearned subtraction facts stored in a linguistic code.

Sample's SF subtest score is 87. This indicates that her rapid subtraction fact retrieval skills are in the Below Average range and that she is performing better than only 19% of peers in the same grade. Scores within this range on the SF subtest suggest difficulty with math fact automaticity and rapid retrieval of basic subtraction facts. However, the student's ability to appreciate numeric qualities and understand mathematical concepts may not necessarily be affected.



### **Multiplication Fluency (MF)**

The MF subtest requires the student to solve as many single-digit multiplication problems as possible in 30 seconds without using paper or pencil. It assesses retrieval speed and automatic recall of overlearned multiplication facts stored in a linguistic code.

Sample's MF subtest score is 87. This indicates that her rapid multiplication fact retrieval skills are in the Below Average range and that she is performing better than only 19% of peers in the same grade. Scores within this range on the MF subtest suggest difficulty with math fact automaticity and rapid retrieval of basic multiplication facts. However, the student's ability to appreciate numeric qualities and understand mathematical concepts may not be affected.

### **Division Fluency (DF)**

The DF subtest requires the student to solve as many simple division problems as possible in 30 seconds without using paper or pencil. It assesses retrieval speed and automatic recall of overlearned division facts stored in a linguistic code.

Sample's DF subtest score is 85. This indicates that her rapid division fact retrieval skills are in the Below Average range and that she is performing better than only 16% of peers in the same grade. Scores within this range on the DF subtest suggest difficulty with math fact automaticity and rapid retrieval of basic division facts. However, the student's ability to appreciate numeric qualities and understand mathematical concepts may not be affected. Further, this score is more than one standard deviation below the normative sample's mean score, which suggests that Sample's rapid division fact retrieval skills are an absolute weakness.

### **Linguistic Math Concepts (LMC)**

The LMC subtest measures a student's math vocabulary and knowledge. The student is presented with various mathematical terms embedded within verbal sentences and must select the correct definition from among four choices. This subtest does not require students to actually solve the problem but instead requires them to use verbal quantitative reasoning to define the specific math term in question.

Sample's LMC subtest score is 100. This indicates that her mathematical vocabulary skills are in the Average range and that she is performing better than 50% of peers in the same grade. Scores within this range on the LMC subtest suggest good conceptual

understanding of mathematical vocabulary and solid verbal quantitative reasoning skills. Since the LMC subtest score is significantly higher than the EB subtest score, the student may be better at using vocabulary knowledge to develop a contextual understanding of mathematics as opposed to using abstract symbols and equations when engaged in quantitative reasoning.

## **Semantic Index (SI)**

### **Spatial Memory (SM)**

The SM subtest presents students with a picture of an abstract shape for 2 seconds. After a 5-second pause, the student must identify the shape, which is rotated or shown from a different perspective, from four or five choices. The pause requires students to hold and manipulate the information, a hallmark feature of working memory skills. Therefore, this subtest measures working memory skills for nonsymbolic or spatial information.

Sample's SM subtest score is 98. This indicates that her spatial working memory skills are in the Average range and that she is performing better than 45% of peers in the same grade. Scores within this range on the SM subtest suggest good spatial working memory skills and a good ability to hold and manipulate geometric objects in the mind's eye.

### **Equation Building (EB)**

The EB subtest requires the student to select the equation that best represents or models a word problem. There is no need to actually solve the problem; rather, this subtest is designed to measure the ability to formulate a symbolic mathematical equation from a verbal sentence. Expressing a mathematical problem in symbolic form requires strong executive functioning skills to determine the proper order of operation as well as good quantitative reasoning abilities.

Sample's EB subtest score is 80. This indicates that her equation building skills are in the Below Average range and that she is performing better than only 9% of peers in the same grade. Scores in this range on the EB subtest suggest limited quantitative and symbolic reasoning skills for mathematics as well as a weak conceptual understanding of mathematics. Furthermore, the student may struggle to generalize her number sense toward the application of mathematical problems in a real-world context. Further, this score is more than one standard deviation below the normative sample's mean score,

which suggests that Sample's equation building skills are an absolute weakness. Since the EB subtest score is significantly lower than the LMC subtest score, Sample may be better at using linguistic skills and vocabulary knowledge to define and conceptually understand math terminology than represent math concepts using symbolic codes.

### Perceptual Estimation (PE)

The PE subtest requires students to estimate the quantity of items in each picture without actually counting them. The items are presented for just 2 seconds. The subtest is a nonsymbolic measure of magnitude representation that requires both spatial memory and quantitative decision making.

**Sample's PE subtest score is 84. This indicates that her visual-spatial perception is in the Below Average range and that she is performing better than only 14% of peers in the same grade.** Scores within this range on the PE subtest suggest difficulty with visual-spatial perception and memory skills, quantitative decision making, and magnitude representation skills. These students often struggle to use nonsymbolic or visually based strategies to determine magnitudes and amounts. Further, this score is more than one standard deviation below the normative sample's mean score, which suggests that Sample's visual-spatial perception is an absolute weakness.

### Number Comparison (NCO)

The NCO subtest presents students with pairs of numbers and requires them to draw a line through the larger of the two numbers as quickly as possible within 60 seconds. This subtest measures the efficiency with which students can use symbolic information to determine magnitude representations.

Sample's NCO subtest score is 76. This indicates that her number comparison skills are in the Moderately Below Average range and that she is performing better than only 5% of peers in the same grade. Scores within this range on the NCO subtest suggest slow numeric processing speed and a weak ability to use symbolic information to determine magnitude representations. Students may lack a deeper understanding of the nonsymbolic value or magnitude that numbers represent. Further, this score is more than one standard deviation below the normative sample's mean score, which suggests that Sample's number comparison skills are an absolute weakness. Since the NCO subtest score is significantly lower than the RNN subtest score, the student is more adept at identifying random digits void of any magnitude or amount, but she may lack a deeper understanding of the nonsymbolic or quantitative value that each number represents.

### **Addition Knowledge (AK)**

The AK subtest requires the student to identify the missing addend in as many addition problems as possible in 60 seconds using paper and pencil. It measures the semantic understanding of addition concepts and requires a deeper understanding of number relationships other than just rote memorization of addition facts.

Sample's AK subtest score is 71. This indicates that her quantitative knowledge of addition is in the Moderately Below Average range and that she is performing better than only 3% of peers in the same grade. Scores in this range on the AK subtest suggest limited semantic understanding of addition concepts and weak quantitative reasoning skills as applied to addition problems. Further, this score is more than one standard deviation below the normative sample's mean score, which suggests that Sample's quantitative knowledge of addition is an absolute weakness. Since the AK subtest score is significantly lower than the AF subtest score, the student may excel at memorizing basic addition facts despite having a limited overall core number sense.

### **Subtraction Knowledge (SK)**

The SK subtest requires the student to identify the missing minuend or subtrahend in as many subtraction problems as possible in 60 seconds using paper and pencil. It measures the semantic understanding of subtraction concepts and requires a deeper understanding of number relationships rather than just rote memorization of subtraction facts.

Sample's SK subtest score is 74. This indicates that her quantitative knowledge of subtraction is in the Moderately Below Average range and that she is performing better than only 4% of peers in the same grade. Scores within this range on the SK subtest suggest limited semantic understanding of subtraction concepts and weak quantitative reasoning skills when applied to subtraction problems. Further, this score is more than one standard deviation below the normative sample's mean score, which suggests that Sample's quantitative knowledge of subtraction is an absolute weakness. Since the SK subtest score is significantly lower than the SF subtest score, the student may be better at memorizing and retrieving rote subtraction facts rapidly but lack a conceptual understanding of core subtraction concepts and have a limited overall number sense.

## **Multiplication Knowledge (MK)**

The MK subtest requires the student to identify the missing factor in as many multiplication problems as possible in 60 seconds using paper and pencil. It measures the semantic understanding of multiplication concepts and requires a deeper understanding of number relationships rather than just rote memorization of multiplication facts.

Sample's MK subtest score is 75. This indicates that her quantitative knowledge of multiplication is in the Moderately Below Average range and that she is performing better than only 5% of peers in the same grade. Scores in this range on the MK subtest suggest limited semantic understanding of multiplication concepts and weak quantitative reasoning skills when applied to multiplication problems. Further, this score is more than one standard deviation below the normative sample's mean score, which suggests that Sample's quantitative knowledge of multiplication is an absolute weakness. Since the MK subtest score is significantly lower than the MF subtest score, the student may excel at memorizing rote multiplication facts despite having limited overall number sense and knowledge of multiplication procedures.

## **Division Knowledge (DK)**

The DK subtest requires the student to identify the missing dividend or divisor in as many division problems as possible in 60 seconds using paper and pencil. It measures the semantic understanding of division concepts and requires a deeper understanding of number relationships than just rote memorization of division facts.

Sample's DK subtest score is 77. This indicates that her quantitative knowledge of division is in the Moderately Below Average range and that she is performing better than only 6% of peers in the same grade. Scores in this range on the DK subtest suggest limited semantic understanding of number relationships and division concepts and weak quantitative reasoning skills when applied to division problems. Further, this score is more than one standard deviation below the normative sample's mean score, which suggests that Sample's quantitative knowledge of division is an absolute weakness. Since the DK subtest score is significantly lower than the DF subtest score, Sample may excel at memorizing basic division facts despite having limited overall number sense and knowledge of division procedures.

## FAM Feedback and Recommendations

According to the FAM, Sample presents with core overall math skills below grade-level expectations. There was evidence of global math delays, though she does not necessarily present with a specific subtype of dyscalculia. Sample has potential to make significant strides in math provided she has access to specific targeted math intervention programs. Before the actual selection and implementation of a math program takes place, it is recommended that careful consideration be given to the following:

### General Math Strategies

1. Create the time—Sample may benefit from targeted math instruction administered 4-5 days per week for a minimum of 30-45 minutes per day. The focus of instruction should strive toward developing a greater conceptual understanding of mathematics, better automaticity of facts, and the ability to generalize and apply math to solve real-world problems.

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### Targeted Math Programs

With respect to targeted math programs, the following math intervention programs and strategies are suggested (please note that this is not meant to be an exhaustive list):

#### **enVisionmath2.0**

This is a computer-based program for students in Grades K-6 aligned with Common Core Standards. Lessons begin with a review session, then provide a problem-based exercise, which is followed by individual learning activities. Students are assessed daily to identify skills in need of additional work. The program specializes in synchronizing technology skills with mathematics and guides students through interactive technology-based activities.

<https://www.pearsonschool.com/index.cfm?locator=PS2xIm>

*Redacted for sample report.*

## Websites and Apps

The following websites and apps may be suited for use at home or with a math tutor:

### Coolmath

An interactive website designed for students over the age of 13 years that offers games, activities, puzzles, and challenges for a variety of math topics such as algebra and precalculus.

<http://www.coolmath.com/>

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## Behavioral Observations

Subtest	Standard score	Behavioral observations
Forward Number Count (FNC)	77	-- Dropping back and counting forward -- "Ones" strategy
Backward Number Count (BNC)	77	-- Dropping back and counting forward -- "Ones" strategy
Numeric Capacity (NCA)	102	-- Length of longest digit span
Rapid Number Naming (RNN)	107	<input type="checkbox"/> Skipping lines <input type="checkbox"/> Uneven tempo Number(s) most frequently incorrect
Addition Fluency (AF)	89	-- Finger counting -- Verbal counting <input type="checkbox"/> Skipping lines <input type="checkbox"/> Uneven tempo Accuracy vs. speed <input type="checkbox"/> Sacrificed speed for accuracy <input type="checkbox"/> Sacrificed accuracy for speed
Subtraction Fluency (SF)	87	-- Finger counting -- Verbal counting <input type="checkbox"/> Skipping lines <input type="checkbox"/> Uneven tempo Accuracy vs. speed <input type="checkbox"/> Sacrificed speed for accuracy <input type="checkbox"/> Sacrificed accuracy for speed
Multiplication Fluency (MF)	87	-- Finger counting -- Verbal counting <input type="checkbox"/> Skipping lines <input type="checkbox"/> Uneven tempo Accuracy vs. speed <input type="checkbox"/> Sacrificed speed for accuracy <input type="checkbox"/> Sacrificed accuracy for speed



Subtest	Standard score	Behavioral observations
Division Fluency (DF)	85	<ul style="list-style-type: none"> <li>-- Finger counting</li> <li>-- Verbal counting</li> <li><input type="checkbox"/> Skipping lines</li> <li><input type="checkbox"/> Uneven tempo</li> <li>Accuracy vs. speed               <ul style="list-style-type: none"> <li><input type="checkbox"/> Sacrificed speed for accuracy</li> <li><input type="checkbox"/> Sacrificed accuracy for speed</li> </ul> </li> </ul>
Perceptual Estimation (PE)	84	<ul style="list-style-type: none"> <li><input type="checkbox"/> Attempting to count</li> </ul>
Number Comparison (NCO)	76	<ul style="list-style-type: none"> <li><input type="checkbox"/> Working out answers</li> <li>Accuracy vs. speed               <ul style="list-style-type: none"> <li><input type="checkbox"/> Sacrificed speed for accuracy</li> <li><input type="checkbox"/> Sacrificed accuracy for speed</li> </ul> </li> </ul>
Addition Knowledge (SK)	71	<ul style="list-style-type: none"> <li><input type="checkbox"/> Working out answers</li> <li><input type="checkbox"/> Finger counting</li> <li><input type="checkbox"/> Verbal counting</li> <li>Accuracy vs. speed               <ul style="list-style-type: none"> <li><input type="checkbox"/> Sacrificed speed for accuracy</li> <li><input type="checkbox"/> Sacrificed accuracy for speed</li> </ul> </li> </ul>
Subtraction Knowledge (SK)	74	<ul style="list-style-type: none"> <li><input type="checkbox"/> Working out answers</li> <li><input type="checkbox"/> Finger counting</li> <li><input type="checkbox"/> Verbal counting</li> <li>Accuracy vs. speed               <ul style="list-style-type: none"> <li><input type="checkbox"/> Sacrificed speed for accuracy</li> <li><input type="checkbox"/> Sacrificed accuracy for speed</li> </ul> </li> </ul>
Multiplication Knowledge (MK)	75	<ul style="list-style-type: none"> <li><input type="checkbox"/> Working out answers</li> <li><input type="checkbox"/> Finger counting</li> <li><input type="checkbox"/> Verbal counting</li> <li>Accuracy vs. speed               <ul style="list-style-type: none"> <li><input type="checkbox"/> Sacrificed speed for accuracy</li> <li><input type="checkbox"/> Sacrificed accuracy for speed</li> </ul> </li> </ul>

Subtest	Standard score	Behavioral observations
Division Knowledge (DK)	77	<input type="checkbox"/> Working out answers <input type="checkbox"/> Finger counting <input type="checkbox"/> Verbal counting Accuracy vs. speed <input type="checkbox"/> Sacrificed speed for accuracy <input type="checkbox"/> Sacrificed accuracy for speed

\*\*\* End of Report \*\*\*