

Math Content Standards OPT Diagnostic

Content Area: Math and Number Sense

Standard Statement	Test PA	Test PB	Test PC	Test PD	Test PE	Test PF	Test PG
1. The learner will demonstrate fluency with basic operations using: a) Calculator b) Mental Math c) Pencil and paper	All	All	All	All	All	All	All
2. The learner will select and apply correct operations or procedures to solve a practical problem. This will include simple and multi-step problems. Procedures will include: a) Identifying relevant information b) Determining whether or not there is sufficient information to solve a problem	<input type="checkbox"/> 7 <input type="checkbox"/> 10 <input type="checkbox"/> 12 <input type="checkbox"/> 14 <input type="checkbox"/> 16	<input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 11 <input type="checkbox"/> 13 <input type="checkbox"/> 17 <input type="checkbox"/> 23 <input type="checkbox"/> 24 <input type="checkbox"/> 25	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 8 <input type="checkbox"/> 12	<input type="checkbox"/> 1 <input type="checkbox"/> 3 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 13 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 16 <input type="checkbox"/> 21 <input type="checkbox"/> 24	<input type="checkbox"/> 1 <input type="checkbox"/> 3 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 14 <input type="checkbox"/> 17 <input type="checkbox"/> 19	<input type="checkbox"/> 1 <input type="checkbox"/> 4 <input type="checkbox"/> 12 <input type="checkbox"/> 15 <input type="checkbox"/> 16 <input type="checkbox"/> 17	<input type="checkbox"/> 3 <input type="checkbox"/> 12 <input type="checkbox"/> 13 <input type="checkbox"/> 17 <input type="checkbox"/> 18
3. The learner will use estimation as a strategy to solve a problem and to check the reasonableness of the results.		<input type="checkbox"/> 17 <input type="checkbox"/> 18 <input type="checkbox"/> 20 <input type="checkbox"/> 24	<input type="checkbox"/> 15	<input type="checkbox"/> 1 <input type="checkbox"/> 2		<input type="checkbox"/> 11	<input type="checkbox"/> 12 <input type="checkbox"/> 23
4. The learner will apply the concept of place value in a practical context.	<input type="checkbox"/> 7	<input type="checkbox"/> 11			<input type="checkbox"/> 8 <input type="checkbox"/> 10		<input type="checkbox"/> 4
5. The learner will determine equivalent relationships between fractions, decimals, and percents and convert between forms.				<input type="checkbox"/> 4 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 10 <input type="checkbox"/> 17 <input type="checkbox"/> 23	<input type="checkbox"/> 3 <input type="checkbox"/> 18		<input type="checkbox"/> 19
6. The learner will solve practical problems using: a) Rational numbers b) Percentages	<input type="checkbox"/> 10	<input type="checkbox"/> 4 <input type="checkbox"/> 24	<input type="checkbox"/> 13	<input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 23		<input type="checkbox"/> 1 <input type="checkbox"/> 8 <input type="checkbox"/> 19	<input type="checkbox"/> 3 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 18 <input type="checkbox"/> 20

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7. The learner will set up and solve a variety of problems involving rates . <i>Refer to formula sheet.</i>	<input type="checkbox"/> 12 <input type="checkbox"/> 23	<input type="checkbox"/> 17 <input type="checkbox"/> 25		<input type="checkbox"/> 4 <input type="checkbox"/> 17		<input type="checkbox"/> 18	
8. The learner will set up a ratio to represent a comparison using the following notations: a) a/b b) $a:b$ c) a to b				<input type="checkbox"/> 8 <input type="checkbox"/> 17			<input type="checkbox"/> 6 <input type="checkbox"/> 13 <input type="checkbox"/> 23
9. The learner will solve a variety of practical problems by using proportions . Problems may include: a) Scale drawings b) Maps c) Percentages	<input type="checkbox"/> 14 <input type="checkbox"/> 25		<input type="checkbox"/> 8	<input type="checkbox"/> 4 <input type="checkbox"/> 17		<input type="checkbox"/> 18	<input type="checkbox"/> 1 <input type="checkbox"/> 6
10. The learner will compare and order whole numbers, fractions, decimals, and integers (signed numbers) as they relate to the number line.				<input type="checkbox"/> 10			
11. The learner will solve practical problems involving basic operations with integers.		<input type="checkbox"/> 9					
12. The learner will evaluate expressions using the order of operations .	<input type="checkbox"/> 3	<input type="checkbox"/> 12 <input type="checkbox"/> 23			<input type="checkbox"/> 11 <input type="checkbox"/> 15	<input type="checkbox"/> 9	
13. The learner will evaluate numerical expressions which may contain: a) Exponents b) Roots		<input type="checkbox"/> 23	<input type="checkbox"/> 15	<input type="checkbox"/> 13	<input type="checkbox"/> 11		<input type="checkbox"/> 2 <input type="checkbox"/> 24
14. The learner will use a variety of problem-solving and test-taking strategies, such as: a) Working backwards b) Guess and check c) Substituting simpler numbers d) Recognizing patterns e) Estimating f) Evaluating reasonableness of answers	<input type="checkbox"/> 7	<input type="checkbox"/> 20		<input type="checkbox"/> 4 <input type="checkbox"/> 8 <input type="checkbox"/> 10 <input type="checkbox"/> 25		<input type="checkbox"/> 7	<input type="checkbox"/> 5 <input type="checkbox"/> 16

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15. The learner will provide answers in various formats, including: a) Multiple choice b) Standard grid c) Coordinate plane grid	All	All	All	All	All	All	All

Content Area: Algebra, Functions, and Patterns

Standard Statement	Test PA	Test PB	Test PC	Test PD	Test PE	Test PF	Test PG
1. The learner will analyze and represent a situation involving variable quantities with an expression or equation .	<input type="checkbox"/> 19 <input type="checkbox"/> 24	<input type="checkbox"/> 13 <input type="checkbox"/> 25	<input type="checkbox"/> 3 <input type="checkbox"/> 23 <input type="checkbox"/> 24	<input type="checkbox"/> 9 <input type="checkbox"/> 11 <input type="checkbox"/> 18	<input type="checkbox"/> 25	<input type="checkbox"/> 16	<input type="checkbox"/> 5 <input type="checkbox"/> 16 <input type="checkbox"/> 21
2. The learner will analyze a set of data for the existence of a pattern . Data may appear as: a) Tabular b) Symbolic c) Graphical d) Verbal e) Physical representations	<input type="checkbox"/> 1 <input type="checkbox"/> 6		<input type="checkbox"/> 20	<input type="checkbox"/> 2 <input type="checkbox"/> 8 <input type="checkbox"/> 10	<input type="checkbox"/> 13		<input type="checkbox"/> 9
3. The learner will substitute numbers for the variables in an expression and evaluate, including familiar and unfamiliar formulas. <i>Refer to formula sheet.</i>	<input type="checkbox"/> 9 <input type="checkbox"/> 25	<input type="checkbox"/> 12 <input type="checkbox"/> 16 <input type="checkbox"/> 23	<input type="checkbox"/> 10 <input type="checkbox"/> 25	<input type="checkbox"/> 9 <input type="checkbox"/> 13 <input type="checkbox"/> 18	<input type="checkbox"/> 4 <input type="checkbox"/> 11 <input type="checkbox"/> 15	<input type="checkbox"/> 7 <input type="checkbox"/> 9	<input type="checkbox"/> 1
4. The learner will perform basic operations to simplify expressions containing variables. The expressions may contain: a) Exponents b) Roots	<input type="checkbox"/> 3 <input type="checkbox"/> 9 <input type="checkbox"/> 11	<input type="checkbox"/> 23		<input type="checkbox"/> 13	<input type="checkbox"/> 4 <input type="checkbox"/> 11 <input type="checkbox"/> 15	<input type="checkbox"/> 9	<input type="checkbox"/> 24
5. The learner will solve: a) Multi-step linear equations and inequalities in one variable b) Literal equations (formulas) for a given variable		<input type="checkbox"/> 23		<input type="checkbox"/> 18			<input type="checkbox"/> 21

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6. The learner will find square roots by: a) Recognizing perfect squares b) Approximating the square root of any whole number less than 200 c) Using the scientific calculator				<input type="checkbox"/> 13	<input type="checkbox"/> 11 <input type="checkbox"/> 13		<input type="checkbox"/> 2
7. The learner will convert between different representations of a function including: a) A table of values b) An equation c) A graph d) A verbal description		<input type="checkbox"/> 7		<input type="checkbox"/> 11 <input type="checkbox"/> 12		<input type="checkbox"/> 23	
8. The learner will calculate the slope of a line when given: a) The coordinates of two points on the line b) The equation of the line c) The graph of the line				<input type="checkbox"/> 12			
9. The learner will recognize the general shape of a function and relate it to a data set. Functions will include: a) Linear b) Quadratic c) Exponential	<input type="checkbox"/> 6	<input type="checkbox"/> 22		<input type="checkbox"/> 11 <input type="checkbox"/> 12		<input type="checkbox"/> 24	

Content Area: Data Analysis, Probability, and Statistics

Standard Statement	Test PA	Test PB	Test PC	Test PD	Test PE	Test PF	Test PG
1. The learner will solve problems involving the measures of central tendency: a) Mean b) Median c) Mode d) Range <i>Refer to the formula sheet.</i>	<input type="checkbox"/> 2 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 13	<input type="checkbox"/> 2			<input type="checkbox"/> 2	<input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 5
2. The learner will predict the effect of changing the data set on the measures of central tendency.	<input type="checkbox"/> 6			<input type="checkbox"/> 25			

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Content Area: Data Analysis, Probability, and Statistics

Standard Statement	Test PA	Test PB	Test PC	Test PD	Test PE	Test PF	Test PG
3. The learner will analyze data to identify trends . This will include making comparisons, predictions, and inferences using information displayed in: a) Tables b) Frequency distributions c) Scatter plots d) Line, bar, circle, and picture graphs □□	<input type="checkbox"/> 1 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 15 <input type="checkbox"/> 20 <input type="checkbox"/> 21	<input type="checkbox"/> 19	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 16 <input type="checkbox"/> 17 <input type="checkbox"/> 19	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/> 19 <input type="checkbox"/> 20 <input type="checkbox"/> 25		<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 19 <input type="checkbox"/> 20 <input type="checkbox"/> 21	<input type="checkbox"/> 9 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 25
4. The learner will construct an appropriate representation of a given data set. Representations include: a) Tables b) Frequency distributions c) Scatter plots d) Line, bar, circle, and picture graphs		<input type="checkbox"/> 1 <input type="checkbox"/> 8 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 19 <input type="checkbox"/> 21					
5. The learner will interpret data presented in various forms and use the data to solve problems. This includes recognizing sampling errors and bias .		<input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9	<input type="checkbox"/> 18	<input type="checkbox"/> 6 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 21			<input type="checkbox"/> 4 <input type="checkbox"/> 8
6. The learner will determine correlation and distinguish it from causation .							
7. The learner will analyze a problem situation and determine the probability of an event occurring. This includes: a) Independent events b) Dependent events				<input type="checkbox"/> 17	<input type="checkbox"/> 18		
8. The learner will represent the probability of an event as a ratio or as a percentage between 0% and 100%.				<input type="checkbox"/> 17	<input type="checkbox"/> 18		
9. The learner will identify the number of possible combinations of several objects using: a) Tree diagram b) The fundamental basic counting principle					<input type="checkbox"/> 9		<input type="checkbox"/> 10 <input type="checkbox"/> 20

Content Area: Measurement and Geometry

Standard Statement	Test PA	Test PB	Test PC	Test PD	Test PE	Test PF	Test PG
1. The learner will read and interpret measuring devices.				<input type="checkbox"/> 5			

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Standard Statement	Test PA	Test PB	Test PC	Test PD	Test PE	Test PF	Test PG
<p>2. The learner will convert measurements within a measurement system as part of solving a problem.</p> <p>a) U.S. customary system</p> <p>b) Metric system</p> <p><i>The intent of this standard is for students to make ballpark comparisons and not to memorize conversion factors between U.S. customary and metric units.</i></p>			<input type="checkbox"/> 11		<input type="checkbox"/> 20		
<p>3. The learner will apply the concepts of line and angle relationships to solve problems. This includes, but is not limited to, the concepts of:</p> <p>a) Parallelism</p> <p>b) Perpendicularity</p> <p>c) Complementary angles</p> <p>d) Supplementary angles</p> <p>e) Congruence</p> <p>f) Similarity of figures</p>	<input type="checkbox"/> 18	<input type="checkbox"/> 10 <input type="checkbox"/> 16 <input type="checkbox"/> 20	<input type="checkbox"/> 8 <input type="checkbox"/> 14 <input type="checkbox"/> 21	<input type="checkbox"/> 24	<input type="checkbox"/> 25	<input type="checkbox"/> 24	<input type="checkbox"/> 11
<p>4. The learner will identify and use the properties of plane figures to solve practical problems. <i>Refer to the formula sheet for specific plane figures.</i></p>	<input type="checkbox"/> 8 <input type="checkbox"/> 11 <input type="checkbox"/> 17 <input type="checkbox"/> 18			<input type="checkbox"/> 13			<input type="checkbox"/> 7 <input type="checkbox"/> 11
<p>5. The learner will determine if geometric figures are similar and write proportions to express the relationships between corresponding parts of similar figures.</p>	<input type="checkbox"/> 18 <input type="checkbox"/> 25		<input type="checkbox"/> 5				<input type="checkbox"/> 6
<p>6. The learner will determine if a problem situation involving geometric figures represents the application of :</p> <p>a) Perimeter</p> <p>b) Circumference</p> <p>c) Area</p> <p>d) Volume</p>	<input type="checkbox"/> 8 <input type="checkbox"/> 11	<input type="checkbox"/> 5		<input type="checkbox"/> 13	<input type="checkbox"/> 12 <input type="checkbox"/> 17	<input type="checkbox"/> 10 <input type="checkbox"/> 25	<input type="checkbox"/> 18
<p>7. The learner will predict the effect of changing a linear dimension on:</p> <p>a) Perimeter</p> <p>b) Area</p> <p>c) Volume</p>							<input type="checkbox"/> 18

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Content Area: Measurement and Geometry

Standard Statement	Test PA	Test PB	Test PC	Test PD	Test PE	Test PF	Test PG
8. The learner will use estimation to approximate solutions to problems involving: a) Perimeter b) Circumference c) Area d) Volume							
9. The learner will solve problems involving: a) Perimeter b) Circumference c) Area d) Volume	<input type="checkbox"/> 8 <input type="checkbox"/> 11 <input type="checkbox"/> 25	<input type="checkbox"/> 5	<input type="checkbox"/> 12	<input type="checkbox"/> 13	<input type="checkbox"/> 12	<input type="checkbox"/> 2 <input type="checkbox"/> 10 <input type="checkbox"/> 25	<input type="checkbox"/> 7 <input type="checkbox"/> 18
10. The learner will identify and plot ordered pairs in the four quadrants of a coordinate plane .			<input type="checkbox"/> 22	<input type="checkbox"/> 22		<input type="checkbox"/> 22	<input type="checkbox"/> 22
11. The learner will transform a geometric figure represented on a coordinate plane by: a) Rotating b) Sliding c) Flipping d) Dilating				<input type="checkbox"/> 22	<input type="checkbox"/> 22	<input type="checkbox"/> 22	<input type="checkbox"/> 22
12. The learner will determine the y-intercept of a line when given: a) An equation of the line b) The graph of the line c) Two points on the line	<input type="checkbox"/> 5						
13. The learner will solve problems using: a) Slope b) Y-intercept c) Point of intersection of two lines	<input type="checkbox"/> 5 <input type="checkbox"/> 22	<input type="checkbox"/> 22		<input type="checkbox"/> 19	<input type="checkbox"/> 21 <input type="checkbox"/> 23 <input type="checkbox"/> 24		
14. The learner will use the distance formula to determine lengths. <i>Refer to the formula sheet.</i>							
15. The learner will recognize when the Pythagorean relationship applies and use it to solve problems. <i>Refer to the formula sheet.</i>		<input type="checkbox"/> 13			<input type="checkbox"/> 13	<input type="checkbox"/> 2 <input type="checkbox"/> 10 <input type="checkbox"/> 13	<input type="checkbox"/> 2