

Name: _____ #: _____

Math Study Guide Assigned to Student: Wednesday, January 25, 2017

Math Study Guide Due: Monday, February 6, 2017

Semester 1 3rd Grade Math Benchmark Study Guide

Your 35 question Math Benchmark will take place on February 6th and 7th. This test will be split in half over those two days; tests MUST be completed by the end of each school day. You will NOT be able to go back and check your work at the end of the test therefore you MUST justify each question as you go along throughout the test.

***Questions and concepts on the study guide will be SIMILAR to what you'll be asked on you Math Benchmark, but not the exact questions. Please review and go over all old math tests, assignments, and other materials in addition to this study guide to ensure that you're as prepared as possible. If you're having trouble with any of the concepts below please reach out to your student's teacher in order for additional review and practice resources! ***

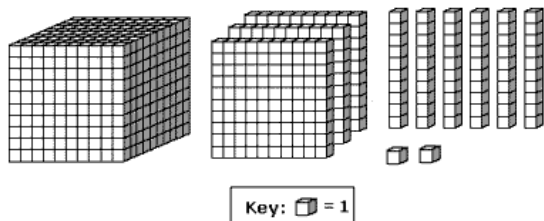
Number & Number Sense (7 of the 35 Items on the Math Benchmark Test)

SOL 3.1a I can identify place value.

Standard Form	Word Form	Expanded Form	Label the Place Values and/or Create a Place Value Chart
			<p style="text-align: center;"> ten thousands hundred thousands thousands hundreds tens one ↓ ↓ ↓ ↓ ↓ 342.365 </p>
665,234			
	Seven hundred forty three thousand, five hundred twenty one		
		$700,000 + 40,000 + 8,000 + 200 + 4$	

SOL 3.1a I can read and write 6 digit numerals.

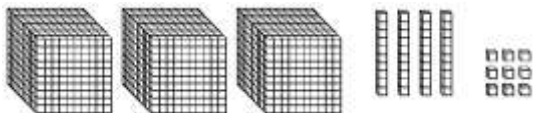
Using the following images, write the numbers represented by the place value blocks in standard, expanded, and word form!



Standard Form: _____

Expanded Form: _____

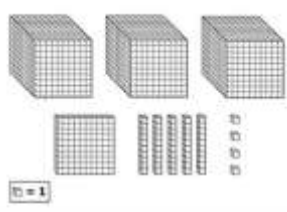
Word Form: _____



Standard Form: _____

Expanded Form: _____

Word Form: _____

<p>Which shows the number 78,025 written in word form?</p> <p>Opt 1 Seven hundred eight thousand, two hundred fifty</p> <p>Opt 2 Seven hundred eighty thousand, twenty-five</p> <p>Opt 3 Seventy-eight thousand, two hundred fifty</p> <p>Opt 4 Seventy-eight thousand, twenty-five</p>	<p>The place value model shown represents a number.</p>  <p>What number is represented by this place value model?</p> <p>Opt 1 354</p> <p>Opt 2 454</p> <p>Opt 3 3,154</p> <p>Opt 4 4,054</p>	<p>Which of the following shows "one hundred thirty thousand, sixty-nine" in standard form?</p> <p>Opt 1 130,069</p> <p>Opt 2 100,369</p> <p>Opt 3 130,690</p> <p>Opt 4 1,003,069</p>
<p>Justification: (label ALL the place values ALWAYS!)</p>	<p>Justification: (label ALL the place values ALWAYS!)</p>	<p>Justification: (label ALL the place values ALWAYS!)</p>

SOL 3.1b I can round to the nearest ten, hundred, and thousand.

Complete the table below!

Original Number	Round to the Nearest Ten	Round to the Nearest Hundred	Round to the Nearest Thousand
5,691			
9,999			
1,111			
6,789			
4,004			
3,999			

Identify all numbers that could round to 4,000.

(Yes, we know that there are TONS of possibilities!) Write AT LEAST 4 different numbers below that will round to 4,000:

1. _____ 2. _____ 3. _____ 4. _____
2. _____

<p>Directions: Click and drag a number to each correct box in the table.</p> <p>Round 5,647 to the places shown.</p> <ul style="list-style-type: none"> •Nearest thousand •Nearest hundred •Nearest ten <table border="1" data-bbox="89 1690 552 1795"> <thead> <tr> <th>Rounded to the Nearest Thousand</th> <th>Rounded to the Nearest Hundred</th> <th>Rounded to the Nearest Ten</th> </tr> </thead> <tbody> <tr> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </tbody> </table> <table border="1" data-bbox="568 1711 722 1785"> <tbody> <tr> <td>5,000</td> <td>5,640</td> </tr> <tr> <td>5,600</td> <td>6,000</td> </tr> <tr> <td>5,650</td> <td>5,700</td> </tr> </tbody> </table>	Rounded to the Nearest Thousand	Rounded to the Nearest Hundred	Rounded to the Nearest Ten	<input type="text"/>	<input type="text"/>	<input type="text"/>	5,000	5,640	5,600	6,000	5,650	5,700	<p>Fred's Nature Store sold 2,046 pounds of birdseed last month. What is 2,046 rounded to the nearest hundred?</p> <p>Opt 1 2,000</p> <p>Opt 2 2,040</p> <p>Opt 3 2,100</p> <p>Opt 4 3,000</p>
Rounded to the Nearest Thousand	Rounded to the Nearest Hundred	Rounded to the Nearest Ten											
<input type="text"/>	<input type="text"/>	<input type="text"/>											
5,000	5,640												
5,600	6,000												
5,650	5,700												
<p>Justification: (label ALL the place values ALWAYS!)</p>	<p>Justification: (label ALL the place values ALWAYS!)</p>												

SOL 3.1c I can compare numbers using symbols (<, >, =)

In the table below, compare the following numbers using both symbols and words (see example)


First Number	Comparison SYMBOL and Comparison WORDS	Second Number
1,111	< Less than	2,222
3,456		3,564
6,893		6,938
9,999		9,990
1,345		1,345

<p>Directions: Click and drag each selected symbol to a box.</p> <p>Select the symbol that will make each number sentence true.</p> <p>78 <input type="text"/> 78 2,288 <input type="text"/> 2,199</p> <p>> = <</p>	<p>Which number is LESS THAN 8,243 ?</p> <p>Opt 1 8,029</p> <p>Opt 2 8,541</p> <p>Opt 3 9,130</p> <p>Opt 4 9,042</p>	<p>Which is true?</p> <p>Opt 1 4,709 > 4,708</p> <p>Opt 2 4,609 > 4,708</p> <p>Opt 3 4,389 > 4,708</p> <p>Opt 4 4,589 > 4,708</p>
<p>Justification: (Be sure to label the place values, the value of each digit allows mathematicians to compare place values!)</p>	<p>Justification: (Be sure to label the place values, the value of each digit allows mathematicians to compare place values!)</p>	<p>Justification: (Be sure to label the place values, the value of each digit allows mathematicians to compare place values!)</p>

SOL 3.2 I can recognize inverse relationships in addition and subtraction. SOL 3.2 I can recognize inverse relationships in multiplication and division.

Inverse is a fancy word for _____. Addition and subtraction are _____ operations! Multiplication and Division are _____ operations! In the table below, given one either addition/subtraction equation or multiplication/division equation, write the other three equations that are found in the same fact family!

Given Equation:	2nd Equation in Fact Family:	3rd Equation in Fact Family:	4th Equation in Fact Family	3 numbers that this fact family contains: Write the
$8+9=17$	$9+8=17$	$17-8=9$	$17-9=8$	17, 9, 8
$23-3=20$				
$4+8=49$				
$12 \times 12 = 144$				
$12 \div 11 = 11$				
$7 \times 8 = 56$				
$42 \div 7 = 6$				

<p>Which number sentence will $9 + 6 = 15$ help solve?</p> <p>Opt. 1 $15 - 9 = \underline{\quad}$</p> <p>Opt. 2 $15 + 9 = \underline{\quad}$</p> <p>Opt. 3 $15 + 9 = \underline{\quad}$</p> <p>Opt. 4 $15 + 9 = \underline{\quad}$</p>	<p>Which number sentence can be completed using the basic fact sentence $3 \times 2 = 6$?</p> <p>Opt. 1 $12 \div 6 = \underline{\quad}$</p> <p>Opt. 2 $6 \div 3 = \underline{\quad}$</p> <p>Opt. 3 $6 \times 3 = \underline{\quad}$</p> <p>Opt. 4 $3 + 2 = \underline{\quad}$</p>	<p>Remove half two groups of snap cubes each like the ones shown.</p>  <p>The number $6 \times 6 = 36$ to describe the snap cubes. Which number sentence is NOT related to $6 \times 6 = 36$?</p> <p>opt. 1 $6 \times 6 = 2$</p> <p>opt. 2 $6 \div 6 = 36$</p> <p>opt. 3 $36 \div 6 = 6$</p> <p>opt. 4 $36 \div 6 = 6$</p>
<p>Justification: (Be sure to write out ALL four equations in the fact family and the three numbers that compose the fact family!)</p>	<p>Justification: (Be sure to write out ALL four equations in the fact family and the three numbers that compose the fact family!)</p>	<p>Justification: (Be sure to write out ALL four equations in the fact family and the three numbers that compose the fact family!)</p>

Computation & Estimation (7 of the 35 Items on the Math Benchmark Test)

SOL 3.4 I can solve addition and subtraction word problems (including multistep problems)

<p>$6,098 - 1,754 = \underline{\quad}$</p> <p>(Be sure to rewrite the equation below in order to solve, LINE UP YOUR PLACE VALUES!)</p>	<p>$3,000 - 285 = \underline{\quad}$</p> <p>(Be sure to rewrite the equation below in order to solve, LINE UP YOUR PLACE VALUES!)</p>	<p>$4,980 + 5,173 = \underline{\quad}$</p> <p>(Be sure to rewrite the equation below in order to solve, LINE UP YOUR PLACE VALUES!)</p>	<p>$5,000 - 2,695 = \underline{\quad}$</p> <p>(Be sure to rewrite the equation below in order to solve, LINE UP YOUR PLACE VALUES!)</p>
<p>Justification: (Be sure to show how you regrouped and how you checked your work with the inverse.)</p>	<p>Justification: (Be sure to show how you regrouped and how you checked your work with the inverse.)</p>	<p>Justification: (Be sure to show how you regrouped and how you checked your work with the inverse.)</p>	<p>Justification: (Be sure to show how you regrouped and how you checked your work with the inverse.)</p>

<p>Kiku had a total of 35 plants at her store on Tuesday morning. During the day, she sold 26 of these plants and then received 136 new plants. At the end of the day, exactly how many plants did Kiku have?</p> <p>opt. 1 9</p> <p>opt. 2 61</p> <p>opt. 3 145</p> <p>opt. 4 237</p>	<p>The table shows the number of pounds of recycled paper collected at two elementary schools.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Paper Collected</th> </tr> <tr> <th>School</th> <th>Recycled Paper (pounds)</th> </tr> </thead> <tbody> <tr> <td>Stonewall</td> <td>421</td> </tr> <tr> <td>Wheaton</td> <td>619</td> </tr> </tbody> </table> <p>What was the total weight of recycled paper collected at these two schools?</p> <p>opt. 1 1,040 pounds</p> <p>opt. 2 1,038 pounds</p> <p>opt. 3 619 pounds</p> <p>opt. 4 421 pounds</p>	Paper Collected		School	Recycled Paper (pounds)	Stonewall	421	Wheaton	619	<p>An ice-cream shop used 1,287 gallons of vanilla ice cream and 956 gallons of chocolate ice cream last month. What was the total number of gallons of vanilla ice cream and chocolate ice cream sold last month?</p> <p>opt. 1 2,243</p> <p>opt. 2 331</p> <p>opt. 3 1,133</p> <p>opt. 4 11,847</p>
Paper Collected										
School	Recycled Paper (pounds)									
Stonewall	421									
Wheaton	619									
<p>Justification:</p>	<p>Justification:</p>	<p>Justification:</p>								

SOL 3.4 I can estimate to solve addition and subtraction word problems.

What does it mean to estimate? _____ If the problem doesn't specify or tell us what place to round to when estimating sums and differences then we must round to the _____ place value of the numbers in the problem!

Benny scored 493 points on the video game and Jason scored 817 points. About how many points did they score together?

Actual/Exact Sum:	Estimated Sum to the greatest place value:	Check with your inverse:
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Keith is reading a book that contains 943 pages. He has read 166 pages. About how many pages were unread?

Actual/Exact Difference:	Estimated Difference to the greatest place value:	Check with your inverse:
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SOL 3.5 I can recall multiplication facts through 12x12.

8 = _____

Which division fact will fill in the blank to make the equation true?

Opt 1 $64 \div 8$

Opt 2 $63 \div 7$

Opt 3 $35 \div 5$

Opt 4 $42 \div 6$

Justification:

Directions: Click and drag the answers to the correct box.

Complete each equation below.

	=		=	
	=		=	
	=		=	
	=		=	

Justification:

Directions: Click on a box to choose each multiplication fact you want to select. You must select all correct multiplication facts.

Select each multiplication fact that equals 48.

4×8	6×9	12×4
7×6	8×6	5×8

Justification:

Directions: Click on a box to choose each multiplication fact you want to select. You must select all correct multiplication facts.

9) 72

Opt 1 8

Opt 2 6

Opt 3 7

Opt 4 9

Justification:

$7 \times 5 =$

$6 \times 7 =$

$84 \div 12 =$

$60 \div 10 =$

$18 \div 9 =$

$108 \div 9 =$

$5 \times 4 =$

$9 \times 4 =$

$45 \div 9 =$

$60 \div 12 =$

$36 \div 6 =$

$7 \times 9 =$

$9 \times 7 =$

$8 \div 4 =$

$4 \times 3 =$

$4 \times 4 =$

$20 \div 5 =$

$10 \times 2 =$

$88 \div 11 =$

$14 \div 2 =$

$18 \div 6 =$

$18 \div 9 =$

$12 \times 3 =$

$27 \div 9 =$

$10 \div 5 =$

$18 \div 2 =$

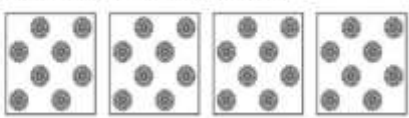





$48 \div 6 =$

$60 \div 6 =$

$6 \times 3 =$

$54 \div 9 =$

SOL 3.6 I can represent multiplication and division equations with models.

<p>Which number sentence best represents this set of flowers?</p>  <p>Opt 1 $32 \div 4 =$ _____</p> <p>Opt 2 $32 - 8 =$ _____</p> <p>Opt 3 $8 \div 4 =$ _____</p> <p>Opt 4 $8 \div 8 =$ _____</p>	<p>Which of these is best represented by this number line?</p>  <p>Opt 1 4×6</p> <p>Opt 2 $6 \div 4$</p> <p>Opt 3 $24 \div 4$</p> <p>Opt 4 $24 \div 6$</p>	<p>Which picture of students best models the fact $3 \times 5 = 15$?</p> <p>Opt 1 </p> <p>Opt 2 </p> <p>Opt 3 </p> <p>Opt 4 </p>
<p>Justification:</p>	<p>Justification:</p>	<p>Justification:</p>

1. For a joke competition, 5 people each told 9 jokes. How many jokes were told in all?

Multiplication Equation:	Equal Sets:	Inverse Equation:	Repeated Addition:
Array:	Number line:		Label the parts of the Multiplication Equation:

2. There are 8 poets who write for a literary magazine. For an upcoming issue, each poet wrote 2 poems. How many poems are there in all?

Multiplication Equation:	Equal Sets:	Inverse Equation:	Repeated Addition:
Array:	Number line:		Label the parts of the Multiplication Equation:

3. Fudge from Zack's Sweet Treats costs \$4 per pound. How much does 10 pounds of fudge cost?

Multiplication Equation:	Equal Sets:	Inverse Equation:	Repeated Addition:
Array:	Number line:		Label the parts of the Multiplication Equation:

4. Joe has 18 toy turkeys. He wants to give an equal amount to his 6 friends. How many would each friend get from Joe?




Division Equation:	Equal Sets:	Inverse Equation:	Repeated Addition:
Array:	Number line:		Label the parts of the Division Equation:

5. Janelle went to the grocery store and bought 4 boxes of granola bars. There were 5 granola bars in each box. How many granola bars did Janelle buy in all?


Multiplication Equation:	Equal Sets:	Inverse Equation:	Repeated Addition:
Array:	Number line:		Label the parts of the Multiplication Equation:

Measurement & Geometry (10 of the 35 Items on the Math Benchmark Test)

SOL 3.11a I can tell time to the nearest minute.

<p>Which is closest to the time shown on this clock?</p>  <p>Opt 1 4:45 Opt 2 5:45 Opt 3 9:05 Opt 4 9:25</p>	<p>This watch shows the time Liam's school bus arrived.</p>  <p>Which is closest to the time Liam's school bus arrived?</p> <p>Opt 1 8:20 Opt 2 8:40 Opt 3 8:10 Opt 4 8:04</p>	<p>Which is CLOSEST to the time shown on the clock?</p>  <p>Opt 1 4:25 Opt 2 4:05 Opt 3 5:20 Opt 4 5:40</p>
<p>Justification: (Be sure to label the hour and minute hand, and count by 5s on the minutes all the way around the analog clock face.)</p>	<p>Justification: (Be sure to label the hour and minute hand, and count by 5s on the minutes all the way around the analog clock face.)</p>	<p>Justification: (Be sure to label the hour and minute hand, and count by 5s on the minutes all the way around the analog clock face.)</p>

SOL 3.11b I can calculate elapsed time.

<p>Franklin began sailing lumber in the morning at the time shown on the clock.</p>  <p>He finished sailing lumber three hours later. At what time did Franklin finish sailing lumber?</p> <p>opt 1 8:45 A.M. opt 2 9:45 A.M. opt 3 10:45 A.M. opt 4 11:45 A.M.</p>	<p>Directions: Click on a box to choose each answer you want to select. You must select all correct answers.</p> <p>Identify all of the time periods that are greater than 3 hours long.</p> <p><input type="checkbox"/> Timmy takes a nap from 3:00 p.m. to 5:00 p.m. <input type="checkbox"/> Mary reads a book from 7:00 a.m. to 11:00 a.m. <input type="checkbox"/> Hannah eats lunch from 12:00 p.m. to 1:00 p.m. <input type="checkbox"/> George's dog barks from 12:00 a.m. to 4:00 a.m.</p>	<p>Type your answer in the box.</p> <p>A train was traveling from New York to Orlando. The train left at 4:55 AM and arrived at 11:55 AM. How long was the trip?</p> <p>_____ hours</p>
<p>Justification: (Be sure to create an elapsed time number line.)</p>	<p>Justification: (Be sure to create an elapsed time number line.)</p>	<p>Justification: (Be sure to create an elapsed time number line.)</p>

SOL 3.12 I can identify and determine equivalent periods of time.

Forever & Always Rules:

- _____ months = 1 year
- _____ days = 1 week
- _____ days = 1 year
- _____ minutes = 1 hour
- _____ hours = 1 day

Alex worked for 5 hours raking leaves. How many minutes are equivalent to 5 hours?


opt 1 500 minutes
opt 2 300 minutes
opt 3 150 minutes
opt 4 120 minutes

Justification: (Be sure to start with your forever & always rule!)

<p>How many minutes are equal to two hours?</p> <p>Opt 1 120 minutes</p> <p>Opt 2 20 minutes</p> <p>Opt 3 100 minutes</p> <p>Opt 4 200 minutes</p>	<p>What is the total number of hours in exactly 1 day?</p> <p>Opt 1 24</p> <p>Opt 2 7</p> <p>Opt 3 12</p> <p>Opt 4 30</p>	<p>Mr. Garrett lived in Fredericksburg for exactly 1 year. Which is closest to the total number of days Mr. Garrett lived in Fredericksburg?</p> <p>Opt 1 365</p> <p>Opt 2 30</p> <p>Opt 3 12</p> <p>Opt 4 7</p>
<p>Justification: (Be sure to start with your forever & always rule.)</p>	<p>Justification: (Be sure to start with your forever & always rule.)</p>	<p>Justification: (Be sure to start with your forever & always rule.)</p>



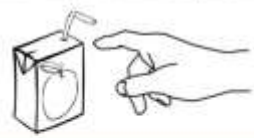
SOL 3.9a I can estimate and measure length.

What're we Measuring?	Word:	Abbreviation (if there is one):	US Customary Unit or Metric Unit?	Definition:	Tools Used to Measure with this Unit:	Real Life Items that you Could Measure with this unit:
Length	Inch		US Customary Unit			
	Foot					
	Yard					
	Centimeter		Metric Unit			
	Meter					

<p>Which is the most reasonable length of a bed?</p> <p>Opt 1 6 feet</p> <p>Opt 2 6 inches</p> <p>Opt 3 6 meters</p> <p>Opt 4 6 centimeters</p>	<p>Which is CLOSEST to the length of the spider pictured?</p>  <p>Opt 1 1 centimeter</p> <p>Opt 2 1.5 centimeters</p> <p>Opt 3 2 centimeters</p> <p>Opt 4 2.5 centimeters</p>	<p>Which is a better estimate of the height of a basketball goal?</p> <p>Opt 1 10 Feet</p> <p>Opt 2 10 Yards</p> <p>Opt 3 10 Inches</p> <p>Opt 4 10 Centimeters</p>
<p>Justification:</p>	<p>Justification:</p>	<p>Justification:</p>


SOL 3.9b I can estimate and measure liquid volume.

What're we Measuring?	Word:	Abbreviation (if there is one):	US Customary Unit or Metric Unit?	Definition:	Tools Used to Measure with this Unit:	Real Life Items that you Could Measure with this unit:
Capacity (Liquid Volume)	Cup		US Customary Unit			
	Pint					
	Quart					
	Gallon					
	Liter		Metric Unit			

<p>Mr. Franklin bought a bottle of cooking oil like the one shown in the picture.</p>  <p>Which is CLOSEST to the amount of cooking oil Mr. Franklin bought?</p> <p>opt 1 1 gallon</p> <p>opt 2 10 gallons</p> <p>opt 3 50 cups</p> <p>opt 4 1 cup</p>	<p>Which is CLOSEST to the amount of water Peter's glass will hold when full?</p>  <p>opt 1 2 cups</p> <p>opt 2 2 quarts</p> <p>opt 3 2 pints</p> <p>opt 4 2 gallons</p>	<p>Which is closest to the amount of liquid a small juice box can hold when full?</p>  <p>opt 1 1 liter</p> <p>opt 2 1 cup</p> <p>opt 3 1 quart</p> <p>opt 4 1 gallon</p>
<p>Justification:</p>	<p>Justification:</p>	<p>Justification:</p>

SOL 3.9c I can estimate and measure weight.


What're we Measuring?	Word:	Abbreviation (if there is one):	US Customary Unit or Metric Unit?	Definition:	Tools Used to Measure with this Unit:	Real Life Items that you Could Measure with this unit:
Weight/Mass	Ounce		US Customary Unit			
	Pound					
	Gram		Metric Unit			
	Kilogram					

<p>Which of the following units can be used to record the weight of a bicycle?</p> <p>opt 1 Pounds</p> <p>opt 2 Cups</p> <p>opt 3 Gallons</p> <p>opt 4 Miles</p>	<p>This scale shows the weight, in pounds, of seven apples.</p>  <p>According to the scale, which is closest to the total weight of these apples?</p> <p>opt 1 5 pounds</p> <p>opt 2 8 pounds</p> <p>opt 3 11 pounds</p> <p>opt 4 7 pounds</p>	<p>Which of the following weighs about the same as a paper clip?</p> <p>opt 1 A piece of notebook paper</p> <p>opt 2 A desk</p> <p>opt 3 A math book</p> <p>opt 4 A pair of scissors</p>
<p>Justification:</p>	<p>Justification:</p>	<p>Justification:</p>

SOL 3.9c I can estimate and measure area/perimeter. SOL 3.10a I can measure to determine perimeter. SOL 3.10b I can count square units to determine area.

Use your centimeter ruler to help you answer this question.

Which is *closest* to the distance around this figure?



Opt 1 8 centimeters

Opt 2 6 centimeters

Opt 3 4 centimeters

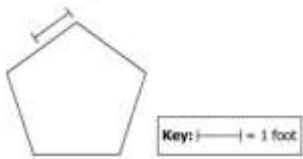


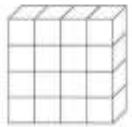
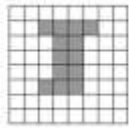

Opt 4 2 centimeters

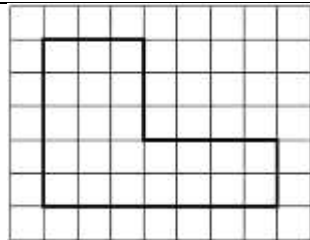
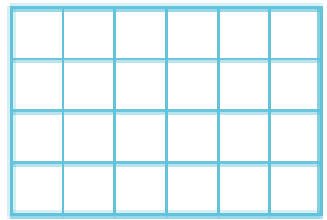
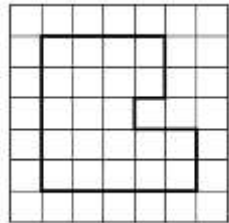
Perimeter can be defined as _____.

Some synonyms of the word perimeter are _____.

Area can be defined as _____.

Synonyms of area are _____!

<p>Each side of this figure is the same length.</p>  <p>Key:  = 1 foot</p> <p>Which measurement is closest to the perimeter of this figure?</p> <p>opt. 1 5 feet</p> <p>opt. 2 8 feet</p> <p>opt. 3 10 feet</p> <p>opt. 4 12 feet</p>	<p>This is 1 block.</p>  <p>How many of these blocks are needed to make the stack shown here?</p>  <p>opt. 1 10</p> <p>opt. 2 20</p> <p>opt. 3 24</p> <p>opt. 4 25</p>	<p>Jackson colored small squares on grid paper to make this design.</p>  <p>If  is equal to 1 square unit, what is the area of Jackson's design?</p> <p>opt. 1 13 square units</p> <p>opt. 2 14 square units</p> <p>opt. 3 16 square units</p> <p>opt. 4 20 square units</p>
<p>Justification:</p>	<p>Justification:</p>	<p>Justification:</p>

	<p>Perimeter: _____</p> <p>Explain your strategy, how did you calculate the perimeter?</p> <p>_____</p> <p>_____</p>	<p>Area: _____</p> <p>Explain your strategy, how did you calculate the perimeter?</p> <p>_____</p> <p>_____</p>
	<p>Perimeter: _____</p> <p>Explain your strategy, how did you calculate the perimeter?</p> <p>_____</p> <p>_____</p>	<p>Area: _____</p> <p>Explain your strategy, how did you calculate the perimeter?</p> <p>_____</p> <p>_____</p>
	<p>Perimeter: _____</p> <p>Explain your strategy, how did you calculate the perimeter?</p> <p>_____</p> <p>_____</p>	<p>Area: _____</p> <p>Explain your strategy, how did you calculate the area?</p> <p>_____</p> <p>_____</p>

SOL 3.B I can read a thermometer to measure temperature to the nearest degree.

Directions: Type your answer in the box.

What is the temperature on this thermometer?

_____ °F

Which thermometer shows a temperature closest to 9°C?

Opt 1

Opt 3

Opt 2

Opt 4

Which thermometer pictured shows a temperature closest to 32° F?

Opt 1

Opt 2

Opt 3

Opt 4

Justification: (Be sure to identify the scale that the thermometer is counting by and label ALL of the degree lines!)

Justification: (Be sure to identify the scale that the thermometer is counting by and label ALL of the degree lines!)

Justification: (Be sure to identify the scale that the thermometer is counting by and label ALL of the degree lines!)

Probability and Statistics, Patterns, Functions, and Algebra (11 of the 35 Items on the Math Benchmark Test)

SOL 3.17b I can construct a line plot. SOL 3.17c I can interpret data on a line plot.

Sam listed his scores from history class.

84, 86, 83, 78, 92, 87, 92, 90, 88, 86

Which line plot correctly displays his scores?

Opt 1

Opt 2

Opt 3

Opt 4

The list below shows the height in inches of each student in Monika's class.

43, 48, 46, 47, 45, 50, 45, 46, 40, 51, 49, 48, 48

Which of the following shows this data correctly plotted?

Opt 1

Opt 3

Opt 2

Opt 4

This line plot shows the number of points scored by students on a team.

Each X represents 1 student.

What was the total number of points scored by the students?

Opt 1 30

Opt 2 19

Opt 3 10

Opt 4 8

Justification:

Justification:

Justification:

SOL 3.17b I can construct a picture or bar graph. SOL 3.17c I can interpret data from a picture or bar graph.

Stephanie recorded the number of inches of rainfall in her city during 4 weeks. The graph below shows the results.

Week	Number of Inches
1	
2	
3	
4	

Key: ☁ = 2 inches

Which bar graph shows the same information?

Opt 1

Opt 3

Opt 2

Opt 4

Tia surveyed 14 students. She asked each student to choose one favorite food from four choices. Which chart could show the data from Tia's survey?

Opt 1

Food	Number of Students
Pizza	6
Spaghetti	2
Hamburger	5
Salad	3

Opt 3

Food	Number of Students
Pizza	8
Spaghetti	4
Hamburger	6

Opt 2

Food	Number of Students
Pizza	5
Spaghetti	4
Hamburger	3
Salad	2

Opt 4

Food	Number of Students
Pizza	6
Spaghetti	2
Hamburger	2

Justification:

Justification:

The table below shows the number of each color pencil in a box.

Pencils in Box	
Color	Number in Box
Red	13
Green	20
Blue	20
Yellow	15

Which graph below shows the correct number of pencils in the box?

Opt 1

Opt 3

Opt 2

Opt 4

These are the leaves Sandy collected for school.

Which bar graph correctly shows the number of each kind of leaf?

Opt 1

Opt 3

Opt 2

Opt 4

Justification:

Justification:

Look at the pictograph.

Car Colors at the Car Wash	
Color	Number of Cars
White	
Red	
Blue	
Silver	

Key: Each = 3 cars.

Based on the graph, what was the total number of cars at the car wash?

Opt 1: 20

Opt 2: 18

Opt 3: 14

Opt 4: 10

Opt 1: 20

Opt 2: 4

Opt 3: 13

Opt 4: 65

The pictograph below shows the number of each color of button Elsa used to decorate a box.

Buttons Used on Box	
Color	Number Used
Blue	
Green	
Pink	
Purple	

Key: Each represents 5 buttons.

Based on the data in the graph, what was the total number of blue buttons Elsa used?

Opt 1: 375

Opt 2: 525

Opt 3: 350

Opt 4: 600

Opt 1: 20

Opt 2: 4

Opt 3: 13

Opt 4: 65

This graph shows the number of students on the honor roll at three schools.

Students on the Honor Roll	
School	Number of Students
A	
B	
C	

Key: = 50 students

What is the total number of students on the honor roll at these three schools?

Justification:

Justification:

Justification:

SOL 3.19 | can recognize, describe, and extend a number pattern.

This table shows the number of minutes it takes Kendal to run laps around a track.

Laps Around a Track	
Total Number of Laps	Number of Minutes
2	6
4	12
6	18
8	24

If the pattern in the table continues in the same way, which of the following should be used to determine how many minutes it takes Kendal to run 10 laps?

Opt 1: $10 \div 3$

Opt 2: $10 \div 6$

Opt 3: $10 \div 24$

Opt 4: $10 \div 6$

Opt 1: Divide by 9

Opt 2: Multiply by 3

Opt 3: Subtract 2

Opt 4: Add 2

Look at this pattern.

1, 3, 9, 27, 81

Which describes the rule used in this pattern?

Look at this pattern of numbers.

1, 7, 11, 15, 19, ...

If this pattern continues following the same rule, what should be the next number?

Opt 1: 20

Opt 2: 24

Opt 3: 22

Opt 4: 26

Justification: (Label all of the units!)
 Pattern Rule: _____

Justification: (Label all of the units!)
 Pattern Rule: _____

Justification: (Label all of the units!)
 Pattern Rule: _____

SOL 3.19 I can recognize, describe, and extend a picture pattern.

<p>Look at this repeating pattern of four figures.</p> <p>The pattern will continue in the same way. What will be the next two figures in the pattern?</p> <p>Opt 1 <input type="checkbox"/> <input type="checkbox"/></p> <p>Opt 2 <input type="checkbox"/> <input type="checkbox"/></p> <p>Opt 3 <input type="checkbox"/> <input type="checkbox"/></p> <p>Opt 4 <input type="checkbox"/> <input type="checkbox"/></p>	<p>This pattern repeats the first four figures.</p> <p>If this pattern is continued following the same rule, what will be the next 3 figures?</p> <p>Opt 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Opt 2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Opt 3 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Opt 4 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	<p>Looked at a string of beads in the pattern above. The pattern is formed by repeating the first, right beads over and over.</p> <p>If I extend and finish the pattern in the same way, what should be the next two beads be added to the string?</p> <p>Opt 1 <input type="checkbox"/> <input type="checkbox"/></p> <p>Opt 2 <input type="checkbox"/> <input type="checkbox"/></p> <p>Opt 3 <input type="checkbox"/> <input type="checkbox"/></p> <p>Opt 4 <input type="checkbox"/> <input type="checkbox"/></p>
<p>Justification: (Label all of the units!)</p> <p>Pattern Rule: _____</p>	<p>Justification: (Label all of the units!)</p> <p>Pattern Rule: _____</p>	<p>Justification: (Label all of the units!)</p> <p>Pattern Rule: _____</p>

SOL 3.20b I can identify the commutative property. SOL 3.20b I can identify the identity property. SOL 3.20a I can investigate the identity and the commutative properties for addition

<p>Which number can be placed on the line to make the number sentence true?</p> $17 = \underline{\quad} \times 17$ <p>Opt 1 <input type="checkbox"/> 1</p> <p>Opt 2 <input type="checkbox"/> 0</p> <p>Opt 3 <input type="checkbox"/> 2</p> <p>Opt 4 <input type="checkbox"/> 17</p>	<p>Which number sentence shows the use of the identity property of multiplication?</p> <p>Opt 1 <input type="checkbox"/> $5 \times 3 = 3 \times 5$</p> <p>Opt 2 <input type="checkbox"/> $5 + 0 = 5$</p> <p>Opt 3 <input type="checkbox"/> $4 + 1 = 5$</p> <p>Opt 4 <input type="checkbox"/> $1 \times 5 = 5$</p>
<p>Justification:</p>	<p>Justification:</p>

<p>The number sentence below models an addition property.</p> $1 + 2 = 2 + 1$ <p>Which number can be placed in the box so that the following number sentence models the same kind of property?</p> $4 + 9 = 9 + \square$ <p>Opt 1 <input type="checkbox"/> 4</p> <p>Opt 2 <input type="checkbox"/> 5</p> <p>Opt 3 <input type="checkbox"/> 9</p> <p>Opt 4 <input type="checkbox"/> 13</p>	<p>Felicia grouped 10 counters 2 different ways to represent a basic fact.</p> <p>Which number sentence represents these related facts?</p> <p>Opt 1 <input type="checkbox"/> $5 \times 2 = 2 \times 5$</p> <p>Opt 2 <input type="checkbox"/> $5 \times 2 = 5 \times 5$</p> <p>Opt 3 <input type="checkbox"/> $2 \times 5 = 5 \times 2$</p> <p>Opt 4 <input type="checkbox"/> $2 \times 5 = 5 \times 2$</p>
<p>Justification:</p>	<p>Justification:</p>

Commutative Property of Multiplication

Definition:

Examples:

Identity Property of Multiplication

Definition:

Examples:

Commutative Property of Addition

Definition:

Examples:

Identity Property of Addition

Definition:

Examples:

Make sure you're practicing your "Math Memory Key," too!!

If there's anything you don't know how to do or you're not sure if you got it correct, be sure to ask your teacher.. we can't wait to see you ROCK out your Math Benchmark Test!

Work Hard. Be AMAZING!

Multiplication Chart (12 x 12)

X	0	1	2	3	4	5	6	7	8	9	10	11	12
0													
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

You have 12 evenings to work through this study guide and ensure that you're prepared as possible for your upcoming Math Benchmark!

Work your hardest on several problems each evening so that you're ready to show the world what an amazing mathematician you truly are on Monday.

February 6th!

***Turning this in accurately and completely is one of the steps to get you into the game truck and ice cream party rewards for all of your hard work 😊 ***