COMMON CORE ITEM BANK FOR MATHEMATICS

GRADE 2

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INTRODUCTION

This document is meant to be an item pool of items aligned to the Common Core State Standards. The sample items provided are not exhaustive of what the standards mean, rather they are a gauge of what should be included in teaching second graders based on the intent of the Common Core State Standards. This is a companion to a previous document for grade 2, *Delaware's Common Core State Standards for Mathematics – Grade 2 Assessment Examples,* http://www.doe.k12.de.us/aab/Mathematics/Mathematics_docs_folder/DE_CCSS_Grade2_9-12.pdf

Sites used to select assessment items include:

- Illustrative Mathematics
- Howard County Public School System
- North Carolina Department of Instruction

How to Use Various Aspects of This Document

- Analyze the way mathematics standards are conceptualized in each item or task.
- Identify the instructional shifts that need to occur to prepare students to address these more rigorous demands. Develop a plan to implement the necessary instructional changes.
- Recognize that the sample items and tasks are only one way of assessing the standard.
- Instruction should address "focus," coherence," and "rigor" of mathematics concepts.
- Instruction should embed mathematical practices when teaching mathematical content.
- For grades K–5, calculators should not be used as the concepts of number sense and operations are fundamental to learning new mathematics content in grades 6–12.

Your feedback is welcome. Please do not hesitate to contact Katia Foret at katia.foret@doe.k12.de.us or Rita Fry at rita.fry@doe.k12.de.us with suggestions, questions, and/or concerns.

* The Smarter Balanced Assessment Consortium has a 30-item practice test available for each grade level (3-8 and 11) for mathematics and ELA (including reading, writing, listening, and research). These practice tests allow students to experience items that look and function like those being developed for the Smarter Balanced assessments. The practice test also includes performance tasks and is constructed to follow a test blueprint similar to the blueprint intended for the operational test. The Smarter Balanced site is located at: http://www.smarterbalanced.org/

Priorities in Mathematics

Grade	Priorities in Support of Rich Instruction and Expectations of Fluency and Conceptual Understanding
K–2	Addition and subtraction, measurement using whole number quantities
3–5	Multiplication and division of whole numbers and fractions
6	Ratios and proportional reasoning; early expressions and equations
7	Ratios and proportional reasoning; arithmetic of rational numbers
8	Linear algebra

Common Core State Standards for Mathematical Practices

Mathematical Practices		Student Dispositions:	Teacher Actions to Engage Students in Practices:
Essential Processes for a Productive Math Thinker	**1. Make sense of problems and persevere in solving them**	▪ Have an understanding of the situation ▪ Use patience and persistence to solve problem ▪ Be able to use different strategies ▪ Use self-evaluation and redirections ▪ Communicate both verbally and written ▪ Be able to deduce what is a reasonable solution	▪ Provide open-ended and rich problems ▪ Ask probing questions ▪ Model multiple problem-solving strategies through Think-Aloud ▪ Promote and value discourse ▪ Integrate cross-curricular materials ▪ Promote collaboration ▪ Probe student responses (correct or incorrect) for understanding and multiple approaches ▪ Provide scaffolding when appropriate ▪ Provide a safe environment for learning from mistakes
	6. Attend to precision	▪ Communicate with precision—orally and written ▪ Use mathematics concepts and vocabulary appropriately ▪ State meaning of symbols and use them appropriately ▪ Attend to units/labeling/tools accurately ▪ Carefully formulate explanations and defend answers ▪ Calculate accurately and efficiently ▪ Formulate and make use of definitions with others ▪ Ensure reasonableness of answers ▪ Persevere through multiple-step problems	▪ Encourage students to think aloud ▪ Develop explicit instruction/teacher models of thinking aloud ▪ Include guided inquiry as teacher gives problem, students work together to solve problems, and debrief time for sharing and comparing strategies ▪ Use probing questions that target content of study ▪ Promote mathematical language ▪ Encourage students to identify errors when answers are wrong
Reasoning and Explaining	**2. Reason abstractly and quantitatively**	▪ Create multiple representations ▪ Interpret problems in contexts ▪ Estimate first/answer reasonable ▪ Make connections ▪ Represent symbolically ▪ Talk about problems, real-life situations ▪ Attend to units ▪ Use context to think about a problem	▪ Develop opportunities for problem-solving strategies ▪ Give time for processing and discussing ▪ Tie content areas together to help make connections ▪ Give real-world situations ▪ Demonstrate thinking aloud for students' benefit ▪ Value invented strategies and representations ▪ More emphasis on the process instead of on the answer
	3. Construct viable arguments and critique the reasoning of others	▪ Ask questions ▪ Use examples and counter examples ▪ Reason inductively and make plausible arguments ▪ Use objects, drawings, diagrams, and actions ▪ Develop ideas about mathematics and support their reasoning ▪ Analyze others arguments ▪ Encourage the use of mathematics vocabulary	▪ Create a safe environment for risk-taking and critiquing with respect ▪ Provide complex, rigorous tasks that foster deep thinking ▪ Provide time for student discourse ▪ Plan effective questions and student grouping ▪ Probe students

Mathematical Practices		Students:	Teacher(s) promote(s) by:
Modeling and Using Tools	**4. Model with mathematics**	▪ Realize that mathematics (numbers and symbols) is used to solve/work out real-life situations ▪ Analyze relationships to draw conclusions ▪ Interpret mathematical results in context ▪ Show evidence that they can use their mathematical results to think about a problem and determine if the results are reasonable—if not, go back and look for more information ▪ Make sense of the mathematics	▪ Allowing time for the process to take place (model, make graphs, etc.) ▪ Modeling desired behaviors (think alouds) and thought processes (questioning, revision, reflection/written) ▪ Making appropriate tools available ▪ Creating an emotionally safe environment where risk-taking is valued ▪ Providing meaningful, real-world, authentic, performance-based tasks (non-traditional work problems) ▪ Promoting discourse and investigations
	5. Use appropriate tools strategically	▪ Choose the appropriate tool to solve a given problem and deepen their conceptual understanding (paper/pencil, ruler, base ten blocks, compass, protractor) ▪ Choose the appropriate technological tool to solve a given problem and deepen their conceptual understanding (e.g., spreadsheet, geometry software, calculator, web 2.0 tools) ▪ Compare the efficiency of different tools ▪ Recognize the usefulness and limitations of different tools	▪ Maintaining knowledge of appropriate tools ▪ Modeling effectively the tools available, their benefits, and limitations ▪ Modeling a situation where the decision needs to be made as to which tool should be used ▪ Comparing/contrasting effectiveness of tools ▪ Making available and encouraging use of a variety of tools
Seeing Structure and Generalizing	**7. Look for and make use of structure**	▪ Look for, interpret, and identify patterns and structures ▪ Make connections to skills and strategies previously learned to solve new problems/tasks independently and with peers ▪ Reflect and recognize various structures in mathematics ▪ Breakdown complex problems into simpler, more manageable chunks ▪ "Step back" or shift perspective ▪ Value multiple perspectives	▪ Being quiet and structuring opportunities for students to think aloud ▪ Facilitating learning by using open-ended questions to assist students in exploration ▪ Selecting tasks that allow students to discern structures or patterns to make connections ▪ Allowing time for student discussion and processing in place of fixed rules or definitions ▪ Fostering persistence/stamina in problem solving ▪ Allowing time for students to practice
	8. Look for and express regularity in repeated reasoning	▪ Identify patterns and make generalizations ▪ Continually evaluate reasonableness of intermediate results ▪ Maintain oversight of the process ▪ Search for and identify and use shortcuts	▪ Providing rich and varied tasks that allow students to generalize relationships and methods and build on prior mathematical knowledge ▪ Providing adequate time for exploration ▪ Providing time for dialogue, reflection, and peer collaboration ▪ Asking deliberate questions that enable students to reflect on their own thinking ▪ Creating strategic and intentional check-in points during student work time

For classroom posters depicting the Mathematical Practices, please see: http://seancarberry.cmswiki.wikispaces.net/file/detail/12-20math.docx

OPERATIONS AND ALGEBRAIC THINKING (OA)

Cluster: Represent and solve problems involving addition and subtraction.

2.OA.1 – Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See Glossary, Table 1, of CCSS document.)

Cluster: Add and subtract within 20.

2.OA.2 – Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers. (See Standard 1.OA.6 for a list of mental strategies.)

Cluster: Work with equal groups of objects to gain foundations for multiplication.

2.OA.3 – Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

2.OA.4 – Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

Task 1 – 2.OA.1

The 2nd grade class has 9 fewer students than the 3rd grade class. The 2nd grade class has 22 students. How many students are in the 3rd grade class?

A. Write an equation that represents this problem. Use a symbol for the unknown number.

B. Solve the problem.
Use words, numbers, or pictures to explain your reasoning.

_____ students

Task 2 – 2.OA.1

Some fish are swimming in the stream. 23 fish swam away. Then there were 31 fish swimming in the stream. How many fish were swimming in the stream before?

A. Write an equation that represents this problem. Use a symbol for the unknown number.

B. Solve the problem.
Use words, numbers, or pictures to explain your reasoning.

_____ fish

Task 3 – 2.OA.1

Lucas had 67 baseball cards. His friend gave Lucas some more baseball cards. Now Lucas has 95 baseball cards. How many baseball cards did his friend give Lucas?

A. Write an equation that represents this problem. Use a symbol for the unknown number.

B. Solve the problem.
Use words, numbers, or pictures to explain your reasoning.

_____ baseball cards

Task 4 – 2.OA.2

Luke has 5 fewer books than Josh. Luke has 7 books. How many books does Josh have?

A. Write an equation that represents this problem. Use a symbol for the unknown number.

B. Solve the problem.
Use words, numbers, or pictures to explain your reasoning.

_____ books

Task 5 – 2.OA.2

Avi drew 5 pictures to enter in the school art contest. Erick drew 7 pictures. Avi spilled water on 2 of his pictures and ruined them. How many pictures will Avi and Erick enter in the contest?

Solve the problem.
Use words, numbers, or pictures to explain your reasoning.

_____ pictures

Task 6 – 2.OA.2

Samantha has 37 beads. Andrea has 76 beads. How many fewer beads does Samantha have than Andrea?

A. Write an equation that represents this problem. Use a symbol for the unknown number.

B. Solve the problem.
Use words, numbers, or pictures to explain your reasoning.

_____ beads

Task 7 – 2.OA.3

For each problem, decide whether the number of fruit is odd or even. Show how you know it is odd or even.

a. 

○ Odd ○ Even

b. 

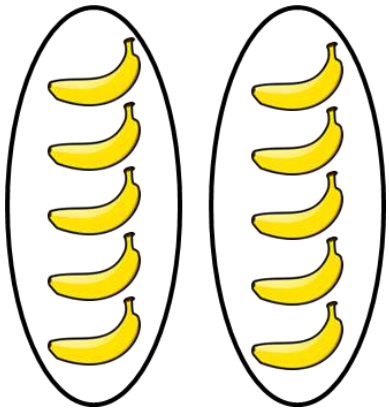
○ Odd ○ Even

c. 

○ Odd ○ Even

d. 

○ Odd ○ Even

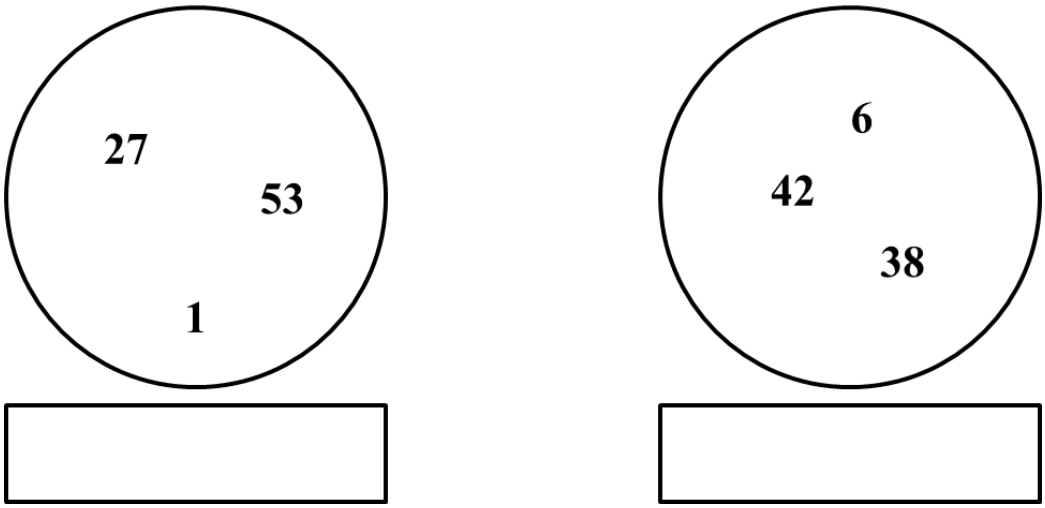
e. 

○ Odd ○ Even

Task 8 – 2.OA.3

In the boxes below each circle, identify which circle contains odd numbers and which circle contains even numbers. Write each of the following numbers in the circle where it belongs.

30 47 124



Task 9 – 2.OA.3

	Ms. King's Class	Mr. West's Class	Ms. Chang's Class
Number of Students	20	25	28

In each class listed above, the students are lining up with a partner to walk to lunch. Which class will have one child with no partner?

Explain your choice.

Task 10 – 2.OA.4

Pam made a batch of cookies. She baked 3 rows of cookies, with 5 cookies in each row. How many cookies did Pam bake?

A. Draw a model (array) to match the problem.

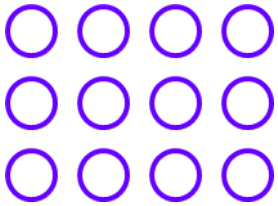
B. Pam baked _____ cookies in all.

C. Write an equation to match the model (array).

_____

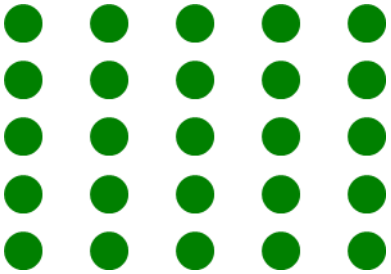
Task 11 – 2.OA.4

Write an equation to match the model (array).

a. 

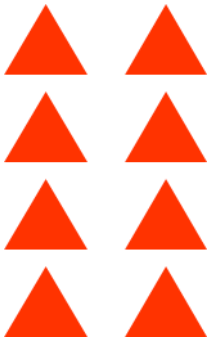
Equation:

_____

b. 

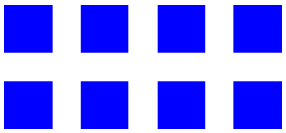
Equation:

_____

c. 

Equation:

_____

d. 

Equation:

_____

Task 12 – 2.OA.4

Mrs. Pink bought 12 sunflower seeds. If she made 3 rows of flowers, how many seeds can Mrs. Pink plant in each row?

A. Draw a model (array) to match the problem.

B. Mrs. Pink can plant _____ sunflower seeds in each row.

C. Write an equation with equal addends to match the model (array).

NUMBER AND OPERATIONS IN BASE TEN (NBT)

Cluster: Understand place value.

2.NBT.1 – Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

a. 100 can be thought of as a bundle of ten tens - called a "hundred."

b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

2.NBT.2 – Count within 1000; skip-count by 5s, 10s, and 100s.

2.NBT.3 – Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

2.NBT.4 – Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

Cluster: Use place value understanding and properties of operations to add and subtract.

2.NBT.5 – Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT.6 – Add up to four two-digit numbers using strategies based on place value and properties of operations.

2.NBT.7 – Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

2.NBT.8 – Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.

2.NBT.9 – Explain why addition and subtraction strategies work, using place value and the properties of operations. (Explanations may be supported by drawings or objects.)

Task 13 – 2.NBT.1

Fill in the blanks with the correct number.

a. 739 = _____ hundreds _____ tens _____ ones

b. 480 = _____ tens _____ hundreds _____ ones

c. Write the number that has 4 hundreds, 0 tens, 2 ones = _____

d. Write the number that has 7 ones, 6 tens, 0 hundreds = _____

Task 14– 2.NBT.1

Use squares □, sticks |, and dots ● to show 462 two different ways.

Where: □ = 100 | = 10 ● = 1

Strategy 1	**Strategy 2**

Task 15 2.NBT.1

Use squares □, sticks |, and dots ● to show each number

Where: □ = 100 | = 10 ● = 1

508	**374**

Task 16 – 2.NBT.2

Complete the pattern:

a. 460, 470, 480, _____, _____, _____

b. _____, 562, 662, 762, _____, _____

Task 17 – 2.NBT.2

Complete the pattern:

a. 10, 15, 20, 25, _____, _____, _____

b. Will the number 58 be part of this pattern? ○ Yes ○ No

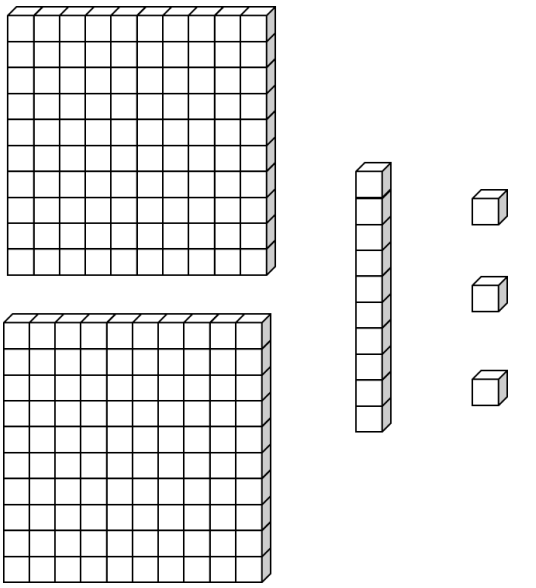
c. How do you know?

Task 18 – 2.NBT.3

Write the numbers represented below:

a. Five hundred ninety four _____

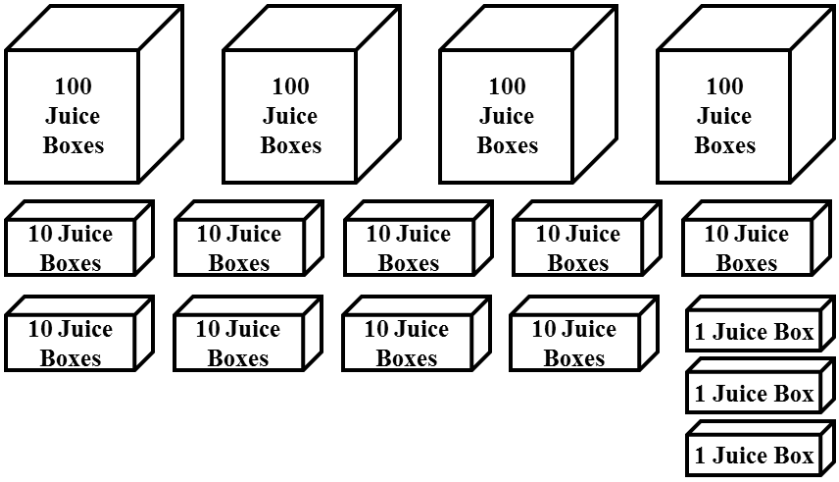
b. _____



c. Four tens and 15 ones _____

Task 19 – 2.NBT.3

The Elementary School lunch room ordered boxes of juice. The juice came in boxes of 100, packages of 10, or single boxes. A second grader drew the picture below to show how many boxes of juice the school received.



a. How many juice boxes did the lunch room order? Write the number of juice boxes in number form.

_____

b. Write the number of juice boxes using expanded form.

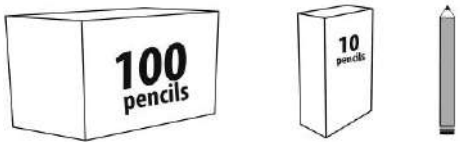
_____

c. The next day, the Middle School ordered 40 **fewer** juice boxes than the Elementary School lunch room. How many juice boxes did they order?

_____ Explain your reasoning.

Task 20 – 2.NBT.3

Pencils come in cases of 100, packs of 10, or as single pencils.



Write the number of pencils that you have in number form and expanded form.

	Number Form	Expanded Form
a. 6 singles, 9 packs, and 4 cases		
b. 1 pack, 3 singles, and 7 cases		
c. 8 cases, 2 singles, and 3 packs		
d. 0 packs, 5 cases, and 0 singles		
e. 1 case, 0 singles and 4 packs		
f. 5 packs, 7 cases, and 0 singles		
g. 0 packs, 1 cases, and 9 singles		

Task 21 – 2.NBT.4

Write a number in every space to make each equation true.

a. 2 hundreds + 3 tens = _____

b. _____ = 5 tens + 1 hundred

c. 6 ones + 4 hundreds = _____

d. 9 hundreds = _____

e. 107 = _____ hundred + _____ tens + _____ ones

f. 107 = _____ tens + _____ ones

g. 107 = _____ ones

h. 80 + 300 + 4 = _____

Are these comparisons true or false? Circle True or False.

Explain your reasoning.

a. 3 hundreds + 2 ones > 4 tens + 8 ones True / False

Explain your reasoning.

b. 8 tens + 1 hundred + 3 ones < 813 True / False

Explain your reasoning.

c. 345 > 4 hundreds True / False

Explain your reasoning.

Which statement is true? **Circle** your choice. Explain your reasoning.

a. 352 > 759

b. 442 > 436

c. 518 > 819

d. 883 < 794

Task 24 – 2.NBT.5

Gemma wrote 100 in four different ways, using both addition and subtraction.

85 + 15	70 + 30
141 – 41	102 – 2

Write 100 using **four other number sentences**. Two number sentences using addition, and two number sentences using subtraction. Do not use the numbers that Gemma used.

1. _____

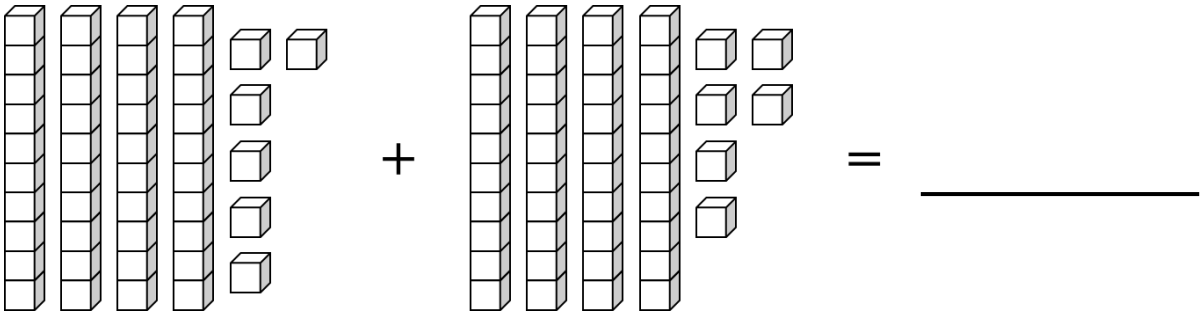
2. _____

3. _____

4. _____

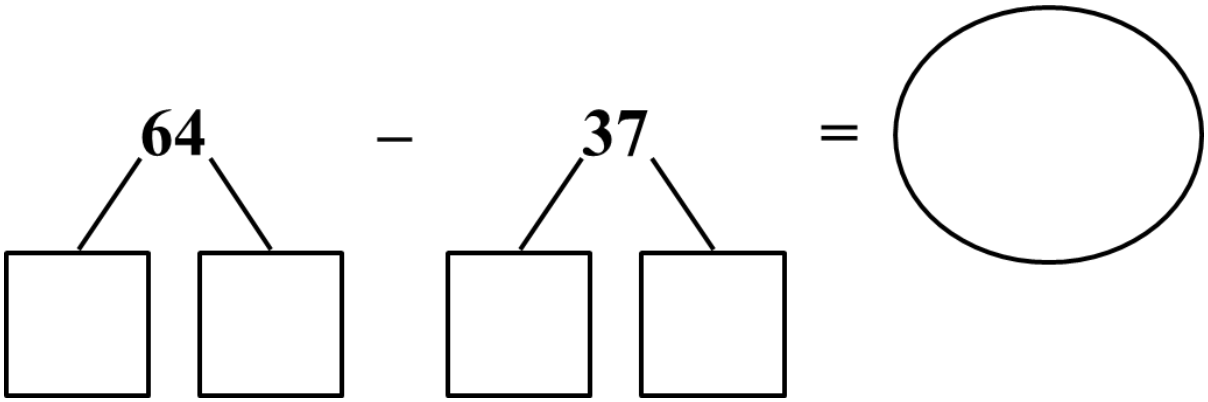
Task 25 – 2.NBT.5

Add or subtract with the base ten blocks. Write the answer to this problem on the line.



Task 26 – 2.NBT.5

Break apart one or both numbers to make them easier to subtract. Write the difference of the numbers in the circle.



Task 27 – 2.NBT.6

Solve the following problems:

a. $\begin{array}{r} 35 \\ 26 \\ +\ 20 \\ \hline \end{array}$

b. $\begin{array}{r} 72 \\ +\ 32 \\ \hline \end{array}$

c. $\begin{array}{r} 34 \\ 28 \\ +\ 30 \\ \hline \end{array}$

d. $\begin{array}{r} 20 \\ 50 \\ 89 \\ +\ 24 \\ \hline \end{array}$

e. $\begin{array}{r} 39 \\ +\ 27 \\ \hline \end{array}$

f. $30 + 40 + 69 + 44 =$ _____

Task 28 – 2.NBT.6

The table shows how many pennies each person has.

Heather: 58	**Bob: 93**	**Sue: 92**	**Sean: 31**

How many pennies do they have in all? Show or tell how you added.

Task 29 – 2.NBT.7

Add:

a. 388 + 307 = ☐

b. 416 + 74 = ☐

Task 30 – 2.NBT.7

Subtract:

a. 804 – 216 = ☐

b. 736 – 570 = ☐

Task 31 – 2.NBT.7

Cut apart cards. Have students pick a card. Ask them to write a story representing the problem and solve the equation using pencil and paper or whiteboards and marker.

a. $425 + 357$	d. $627 + 391$
b. $864 - 392$	e. $298 + 65$
c. $709 + 83$	f. $964 - 190$

Write 10 less and 10 more using mental math:

_____, 641, _____
10 Less 10 More

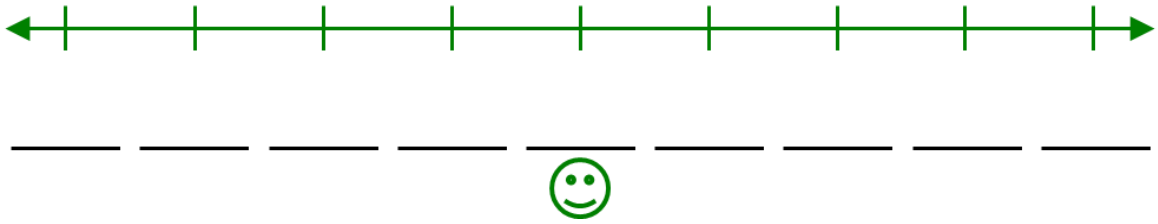
_____, 194_____
10 Less 10 More

_____, 813, _____
10 Less 10 More

Task 33 – 2.NBT.8

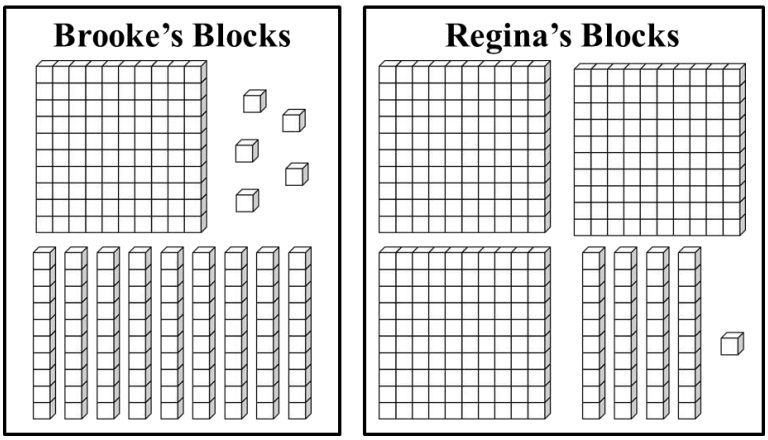
Turn over three numeral cards to make a 3-digit number.

- Record the number on the space above the ☺ on the number line.
- **Add 10** to your starting number and record the new number.
- Continue adding and subtracting 10 until you have nine numbers in sequence.



Task 34 – 2.NBT.9

Brooke and Regina both have some base ten blocks.



1. If Brooke and Regina combine their blocks, how much do they have altogether?

_____

Explain your reasoning with drawings, words, and/or numbers.

2. Mary has some blocks. When Mary adds her blocks to Brooke's and Regina's blocks they have 700 blocks.

   How many blocks did Mary have? _____

Explain your reasoning with drawings, words, and/or numbers.

a. Sunshine Elementary has 216 first graders and 278 second graders. All of the first and second graders are on the playground. How many students are on the playground?

Explain your reasoning with drawings, words, and/or numbers.

_____ students are on the playground.

b. Of all the first and second graders on the playground, one hundred of the students were playing on the blacktop. The rest of the students were playing on the field. How many students were playing in the field?

Explain your reasoning with drawings, words, and/or numbers.

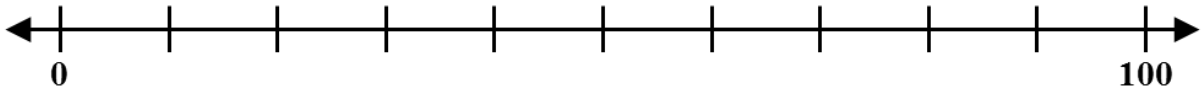
_____ students were playing on the field.

Write an equation to match the situation.

Task 36 – 2.NBT.9

Use the number line to solve this problem.

83 – 50 = _____



MEASUREMENT AND DATA (MD)

Cluster: Measure and estimate lengths in standard units.

2.MD.1 – Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.2 – Measure and estimate lengths in standard units. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

2.MD.3 – Measure and estimate lengths in standard units. Estimate lengths using units of inches, feet, centimeters, and meters.

2.MD.4 – Measure and estimate lengths in standard units. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

Cluster: Relate addition and subtraction to length.

2.MD.5 – Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

2.MD.6 – Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ... , and represent whole-number sums and differences within 100 on a number line diagram.

Cluster: Work with time and money.

2.MD.7 – Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

2.MD.8 – Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ (dollars) and ¢ (cents) symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?

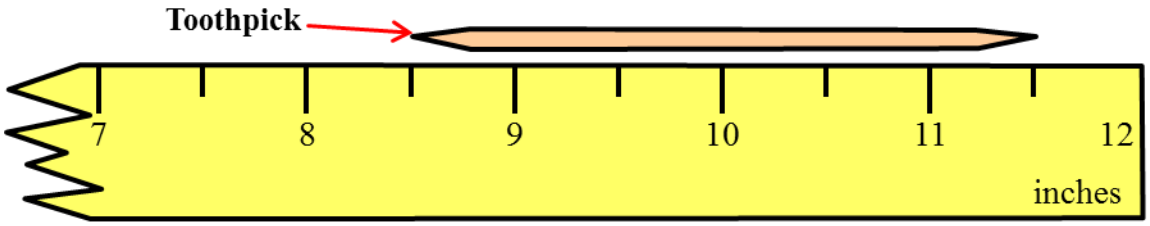
Cluster: Represent and interpret data.

2.MD.9 – Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

2.MD.10 – Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (See Glossary, Table 1, of CCSS document.)

Task 37 – 2.MD.1

What is the length of the toothpick in the figure below? _____



Task 38 – 2.MD.1

You will need a ruler to answer this question.

Use your centimeter ruler to make the following measurements to the **nearest centimeter**.

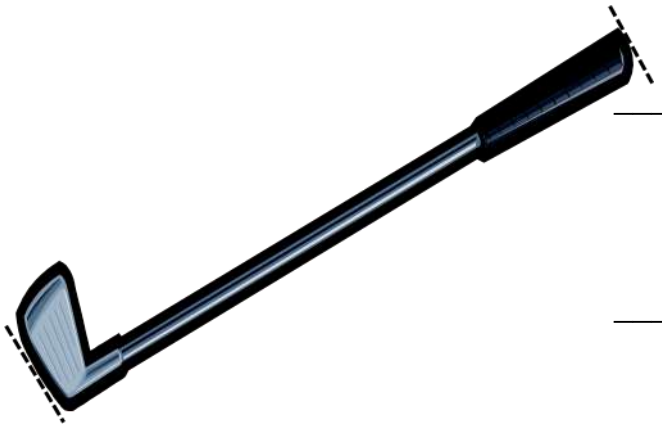
What is the length in centimeters of one of the longer sides of the rectangle?

The length, to the nearest centimeter, of one of the longer sides is

_____ centimeters.

Task 39 – 2.MD.2

Measure the picture of the object below to the nearest inch and centimeter.

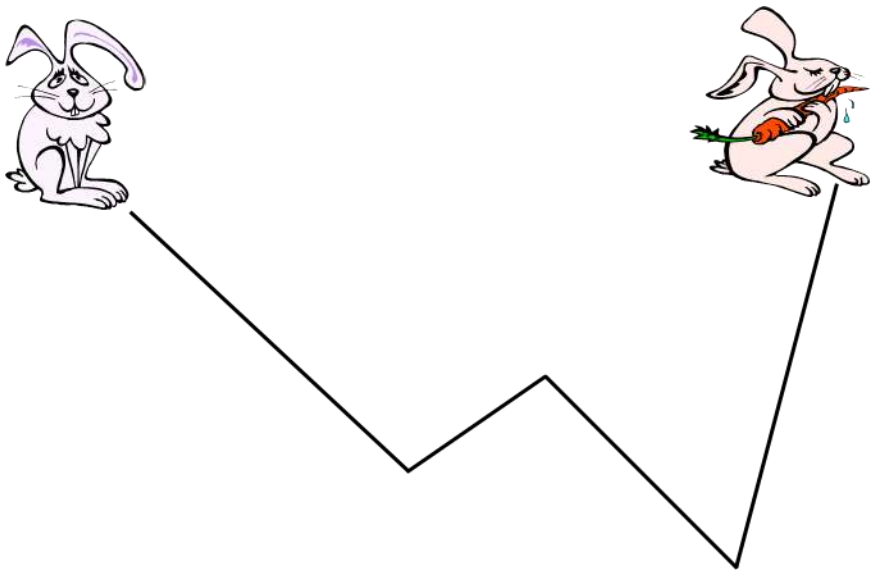


_____ inches

_____ centimeters

Task 40 – 2.MD.2

The rabbit hopped along this path to get to the carrot. Measure the rabbit's path twice, once to the nearest inch and once to the nearest centimeter.



a. The rabbit's path is _____ inches.

b. The rabbit's path is _____ centimeters.

Task 41 – 2.MD.3

Which unit(s) would probably be used to measure the length of a book?

A. Inches

B. Yards

C. Miles

D. Feet

Task 42 – 2.MD.4

Pencil A:

Estimate, do not measure, how many centimeters do you think the length of Pencil A is? _____

I measured the pencil. It is _____ centimeters long.

Pencil B:

Estimate, do not measure, how many centimeters do you think the length of Pencil B is? _____

I measured the pencil. It is _____ centimeters long.

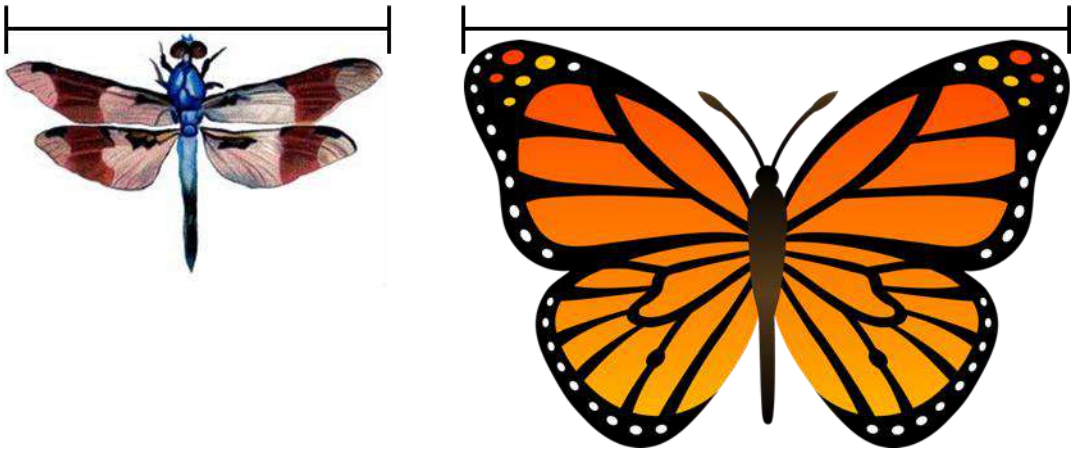
Which pencil is the longest? _____

How many more centimeters does the short pencil need to be so that it is the same length as the long pencil? _____

Explain your reasoning:

Task 43 – 2.MD.4

The lines show the wingspan of a dragonfly and a butterfly. How many centimeters longer is the butterfly's wingspan than the dragonfly's wingspan?



_____ centimeters

Task 44 – 2.MD.5

The teacher measured some fabric for a quilt. Then, she measured 10 more feet of fabric. Now she has 45 feet of fabric. How many feet of fabric did the teacher measure before?

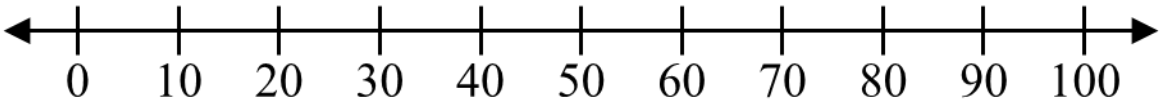
A. Write an equation that represents this problem. Use a symbol for the unknown number.

B. Solve the problem.
Use words, numbers, or pictures to explain your reasoning.

_____ feet

Task 45 – 2.MD.5

A snake was 35 inches long. Now it is 60 inches. How much did the snake grow? Show how you solved the problem on the number line.



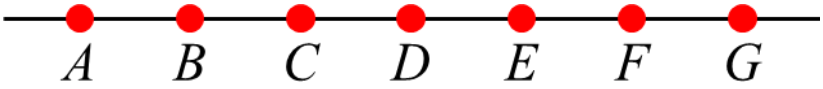
Task 46 – 2.MD.5

A zookeeper measured two snakes. One measured 41 cm and the other measured 64 cm.

What was the difference in length between the two snakes? Show how you solved this problem.

_____ centimeters

Task 47 – 2.MD.6



In the figure above, points labeled *A* through *G* are spaced evenly along a line. Which of the following distances is the greatest?

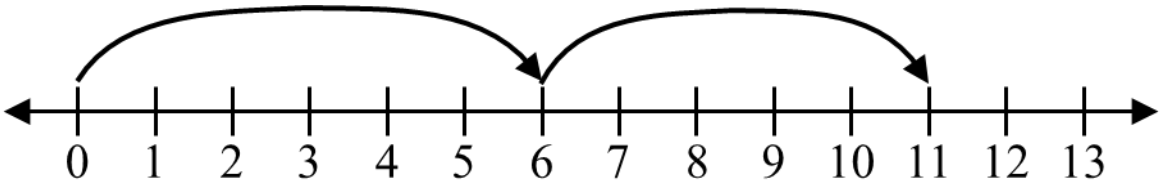
A. From *A* to *D*

B. From *C* to *F*

C. From *E* to *G*

D. From *E* to *A*

Task 48 – 2.MD.6



Using the model above, write an addition problem.

Answer: _____

Task 49 – 2.MD.6

Emmanuel poured 43 candies in the jar. His sister took 13 candies out of the jar. How many candies are now in the jar?

- Use a number line to solve this problem.
- Use numbers and words to explain your thinking.

_____ candies

Task 50 – 2.MD.7

Match the time on the left with the same time on the right.

1.	8:15	a.	30 minutes past twelve
2.	12:30	b.	15 minutes to four
3.	5:20	c.	5 minutes past ten
4.	10:05	d.	15 minutes to seven
5.	3:45	e.	10 minutes to nine
6.	8:50	f.	15 minutes past eight
7.	6:45	g.	5 minutes past twelve
8.	12:05	h.	20 minutes past five

Task 51 – 2.MD.8

Lynn had only quarters, dimes, and nickels to buy her lunch. She spent all of the money and received no change. Could she have spent $1.98?

○ Yes ○ No

Give a reason for your answer.

Task 52 – 2.MD.8

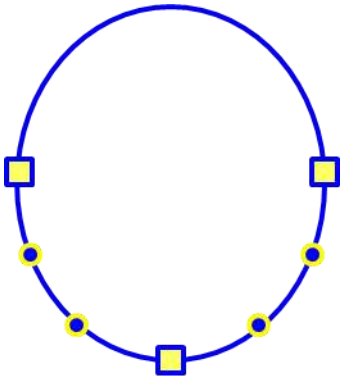
Which is worth the most?

A. 35 pennies

B. 1 quarter

C. 4 dimes

Task 53 – 2.MD.8



If the string does not cost anything, how much does the necklace above cost?

A. 10¢

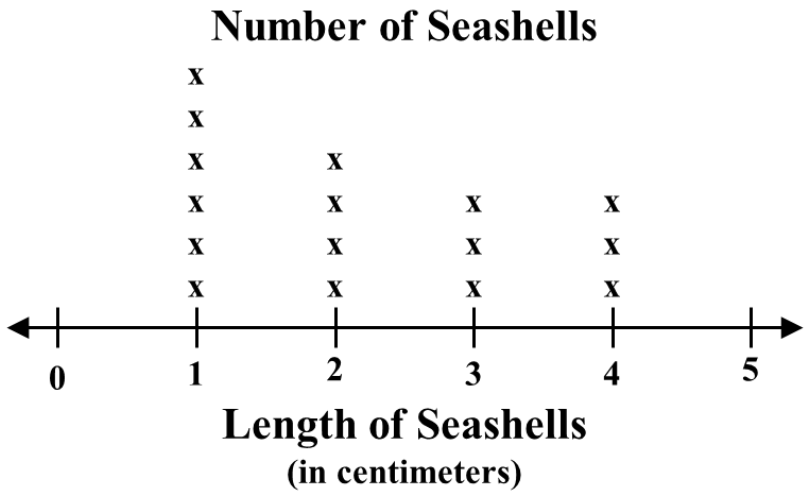
B. 24¢

C. 28¢

D. 34¢

Task 54 – 2.MD.9

Sam went to the beach and collected seashells. The measurements of different seashells that he collected are shown on the line plot.



A. How many seashells are 2 centimeters long? _____ seashells

B. How many seashells are 4 centimeters long? _____ seashells

C. How many seashells did Sam collect? _____ seashells

D. How many seashells are 5 centimeters long? _____ seashells

E. How many more seashells are 1 centimeter long than 4 centimeters long?

_____ seashells

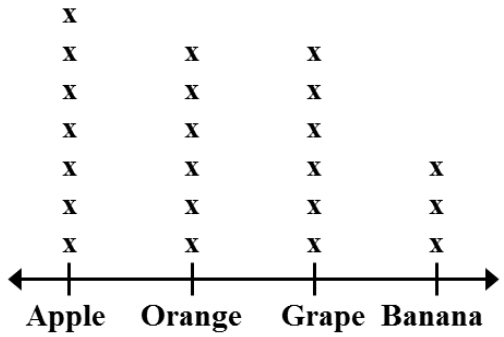
Task 55 – 2.MD.9

The number of fruits in a room is marked on a tally chart.

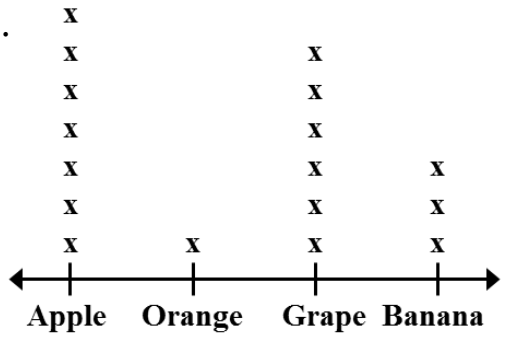
Fruit				
Number	**Apple**	**Orange**	**Grape**	**Banana**
Tally	𝍸	|||	𝍸 ||	|

Select the line plot that matches the above tally chart.

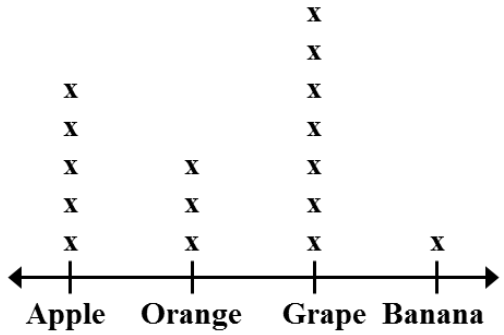
A.



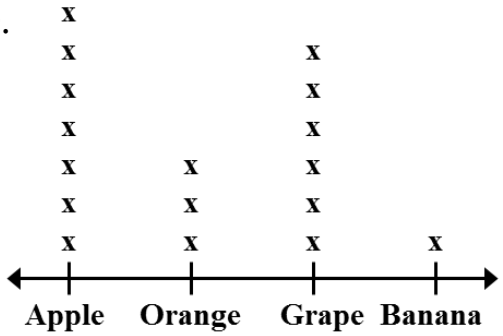
C.



B.



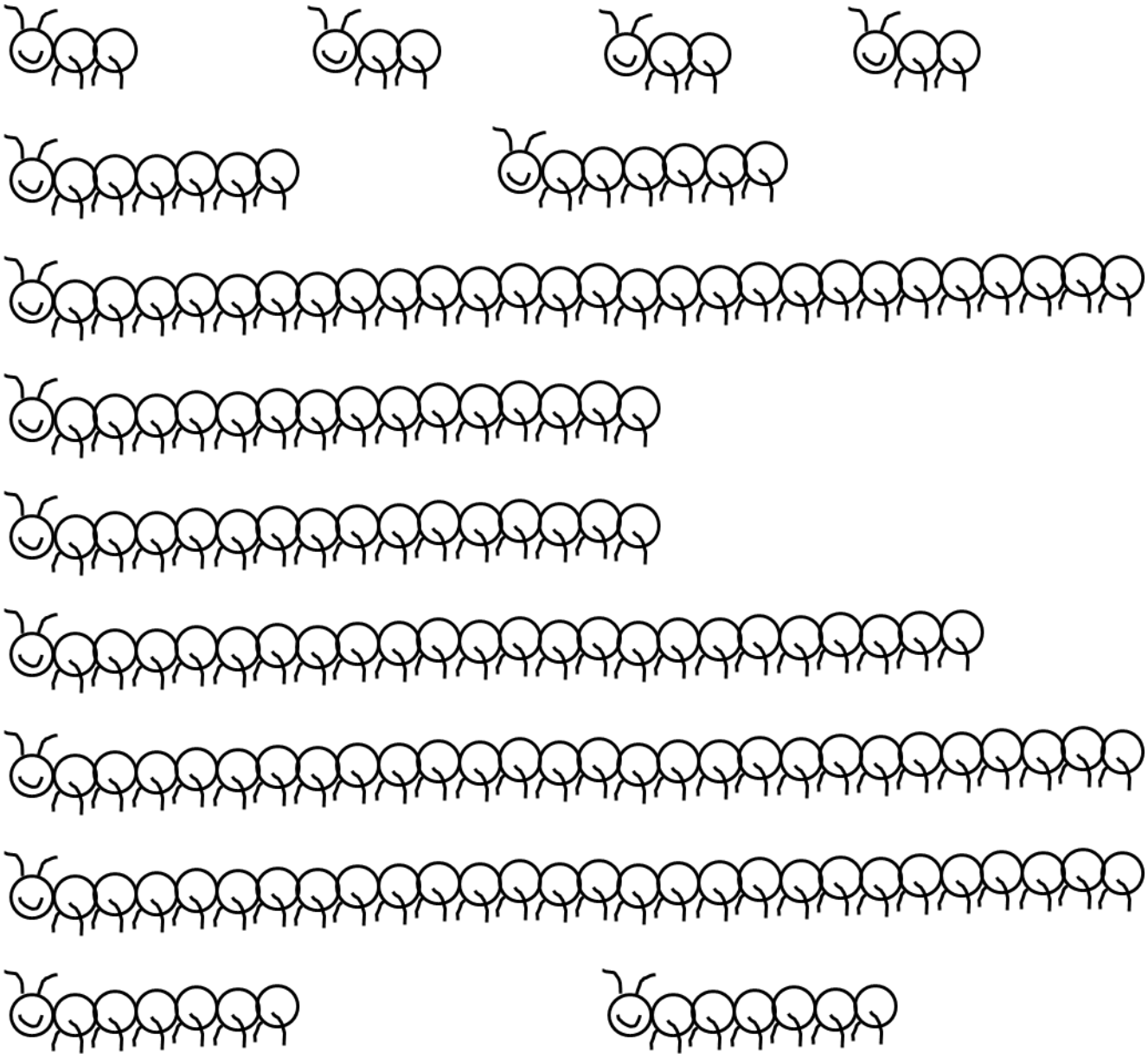
D.



Explain how you know your answer is correct.

Task 56 – 2.MD.9

Measure the caterpillars below to the nearest inch. Plot the data on the line plot on the next page.

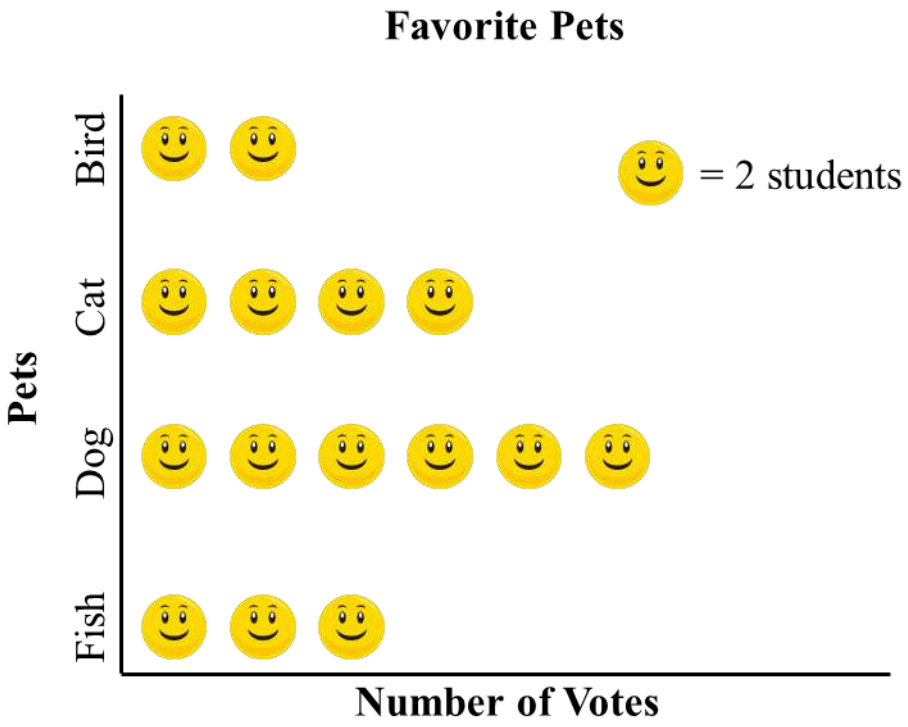


Caterpillar Lengths
$x = 1$ Caterpillar

Length of Caterpillars
(to the nearest inch)

Explain how you created your caterpillar line plot.

Mrs. Jones' class voted for their favorite pets. They then made a pictograph of their favorite pets.



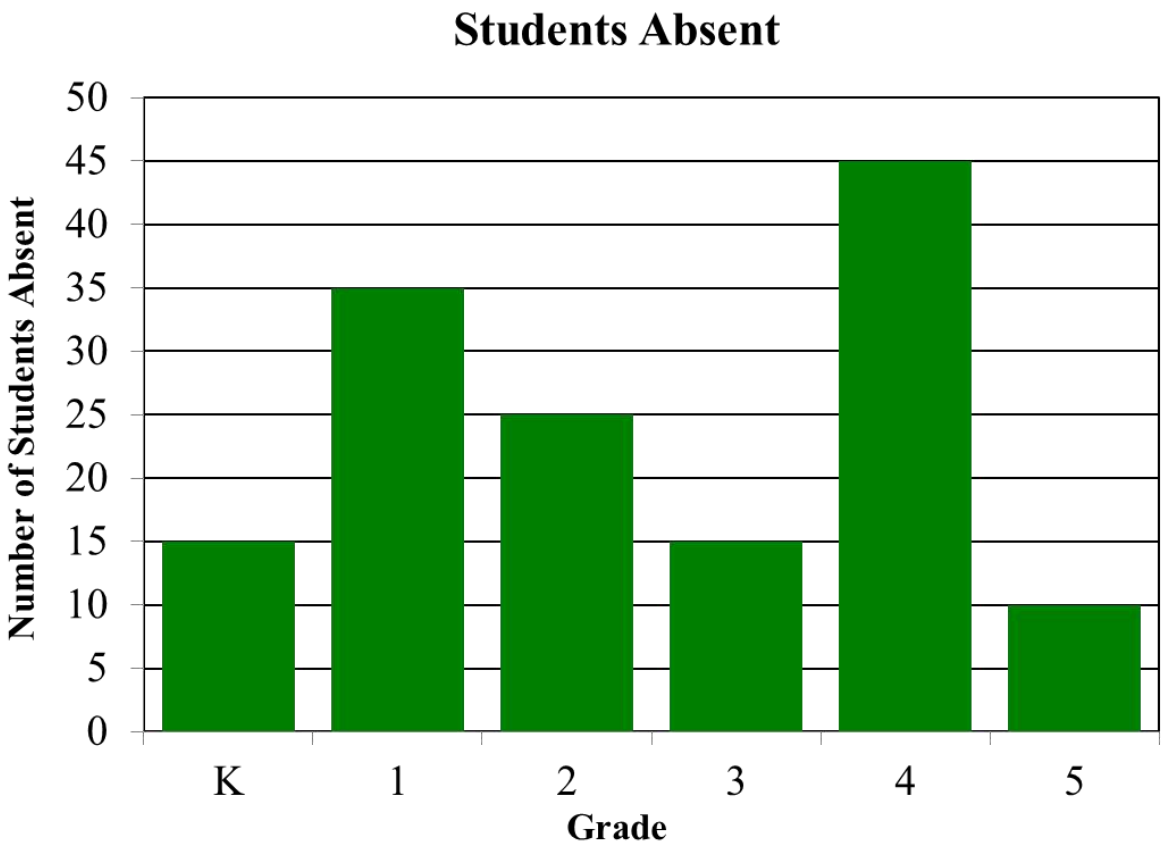
1. There are _____ students altogether.

2. How many students voted for cats? _____

3. How many more students voted for dogs than birds? _____

4. How many students voted for cats and birds together? _____

Task 58 – 2.MD.10



1. Which grade had the most students absent? _____

2. Which grade had the fewest students absent? _____

3. How many more students were absent in grade 1 than in grade 3? _____

4. How many students were absent in kindergarten and grade 3 altogether?

   _____

GEOMETRY (G)

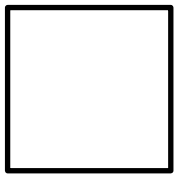
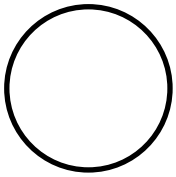
Cluster: Reason with shapes and their attributes.

2.G.1 – Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. (Sizes are compared directly or visually, not compared by measuring.)

2.G.2 – Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

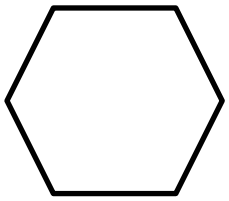
2.G.3 – Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

Look at the chart. Fill in the missing boxes.

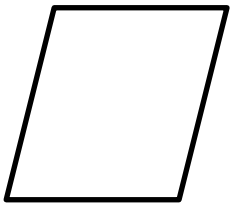
Name of Shape	Picture	Number of Sides	Number of Corners
Hexagon			
		3	
			**4**
			
Rhombus			

Task 60 – 2.G.1

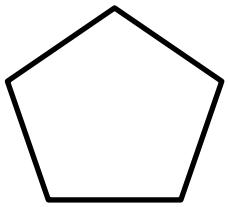
Write the name of each shape.



a. _____



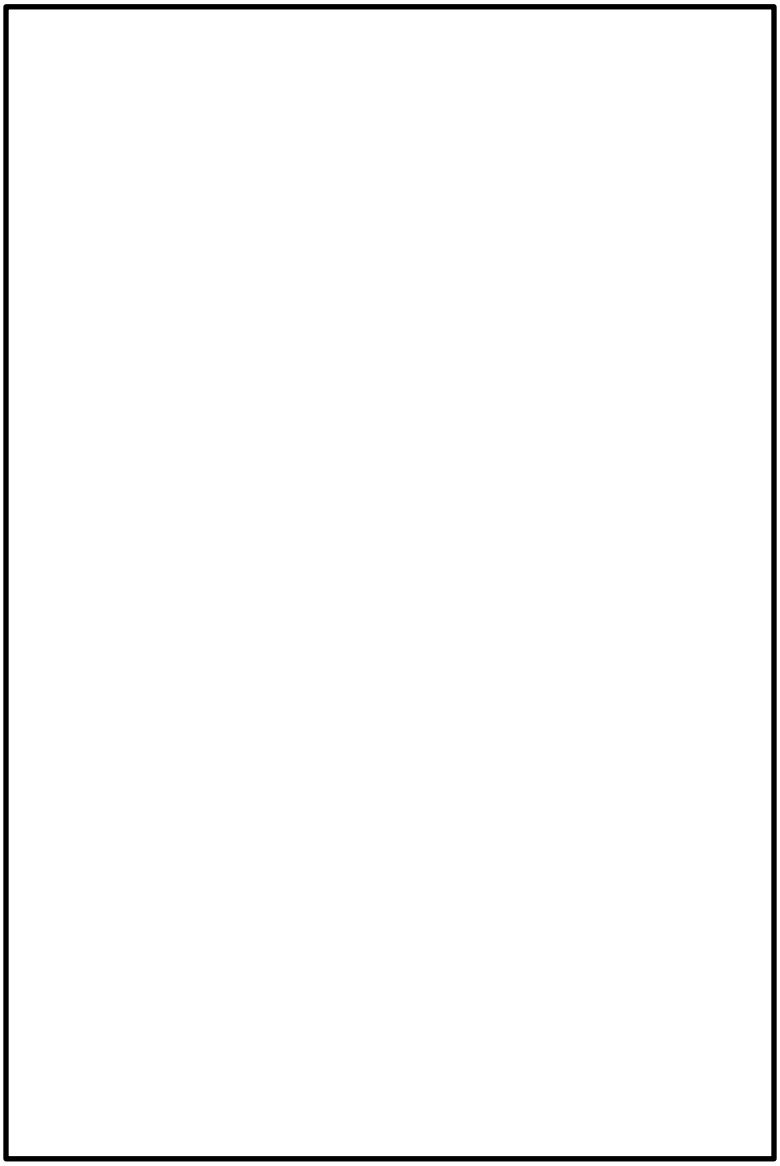
b. _____



c. _____

Task 61 – 2.G.2

Split the rectangle into 3 rows and 4 columns of same-size squares.



How many same size squares do you have? _____

Task 62 – 2.G.3

You have 3 rectangular cakes.

Cut each cake into **fourths** using three different methods.

Method 1

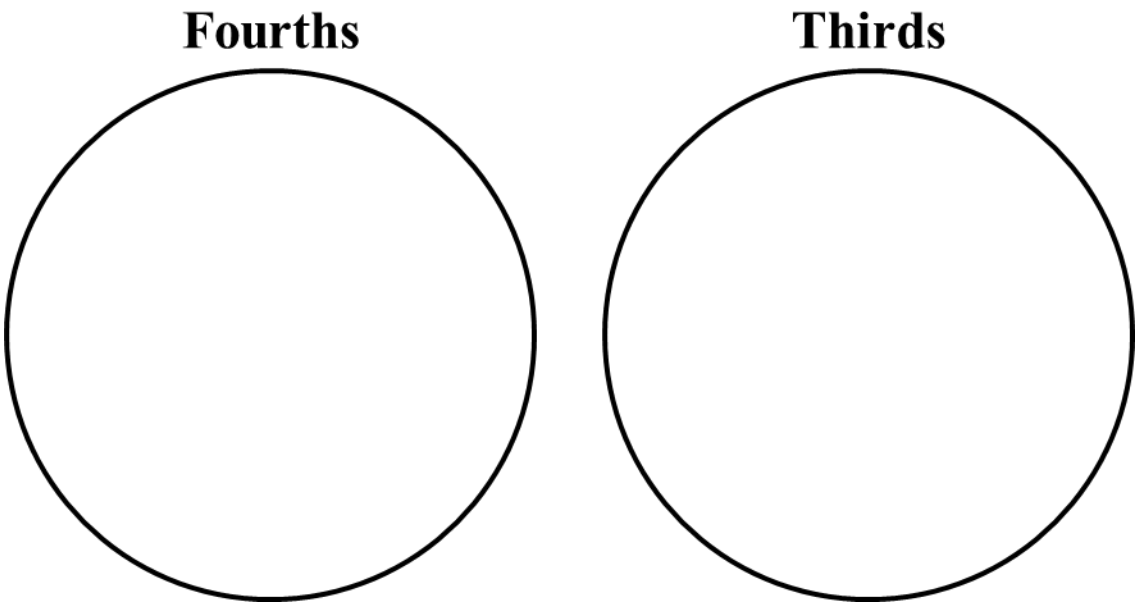
Method 2

Method 3

Explain how you know that each cake has been divided into fourths.

Task 63 – 2.G.3

Carol has 2 round pizzas. She cut the first one in fourths and the second one in thirds. Show how she should cut the pizzas in fourths and thirds.



Which pizza has the larger slices of pizza: the one cut in fourths or the one cut in thirds? Explain your reasoning.

ANSWERS TO GRADE 2 ITEMS

Operations and Algebraic Thinking (OA)

Task 1

A. Equation: ▲ = 22 + 9 or other equivalent equation ▲ = 3rd grade class

B. Solve the problem:

2nd Grade: 𝍸 𝍸 𝍸 𝍸 ||

3rd Grade: 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 |

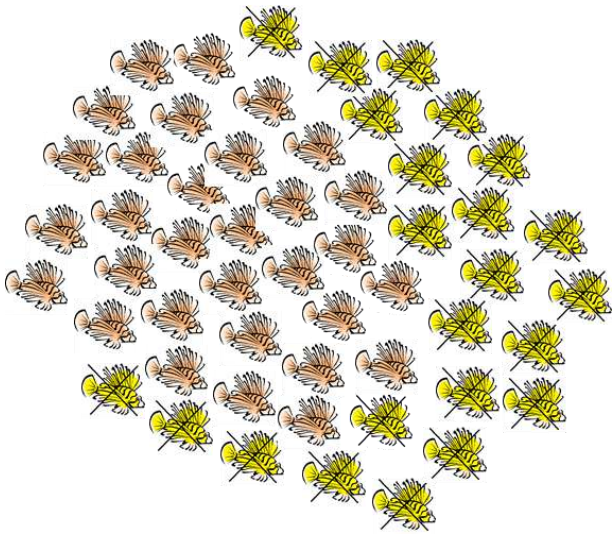
22 + 9 = 31

Task 2

A. Equation: ♦ −23 = 31 OR 23 + 31 = ♦ OR 31 = ♦ − 23

♦ = total number of fish

B. Solve the problem:

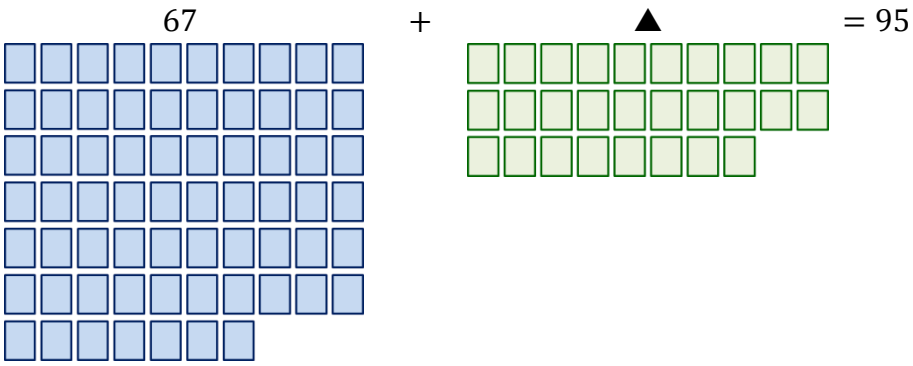


23 + 31 = 54 fish

Task 3

A. Equation: $67 + ▲ = 95$ OR $95 - 67 = ▲$ ▲ = baseball cards

B. Solve the problem:



Task 4

A. Equation: $● = 7 + 5$ OR $● - 5 = 7$ ● = number of books for Josh

B. Solve the problem:

Luke: 

Josh: 

$7 + 5 = 12$ OR $12 - 5 = 7$

Words: Luke has 7 books. Josh has 5 more books than Luke, so he has 12 books.

Task 5

A. Answer: 10

B. Solve the problem:

Avi: 

Erick: 

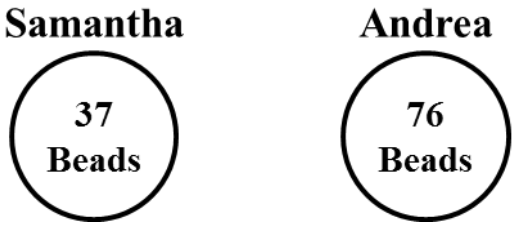
$5 + 7 = 12$

$12 - 2 = 10$ pictures for the contest

Task 6

A. Equation: $37 + \bullet = 76$

B. Solve the problem:



Andrea has 39 more beads than Samantha because:

$37 + \mathbf{39} = 76$

Task 7

a. Even

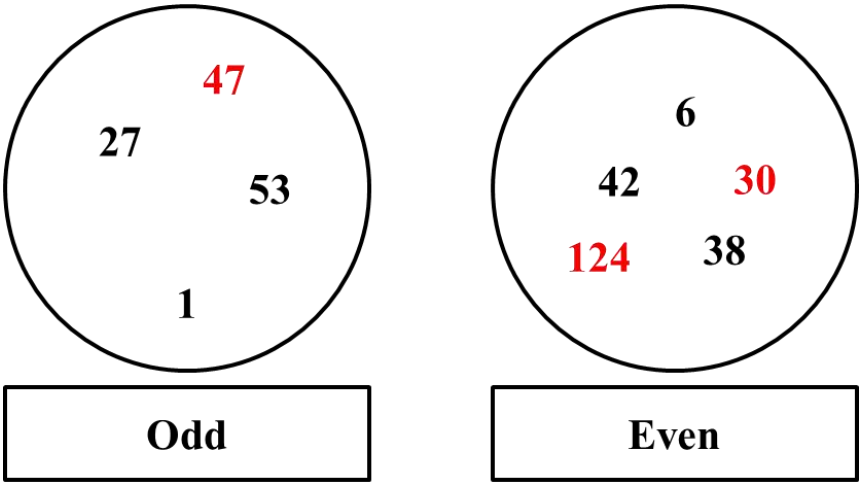
b. Even

c. Odd

d. Odd

e. Even

Task 8



Task 9

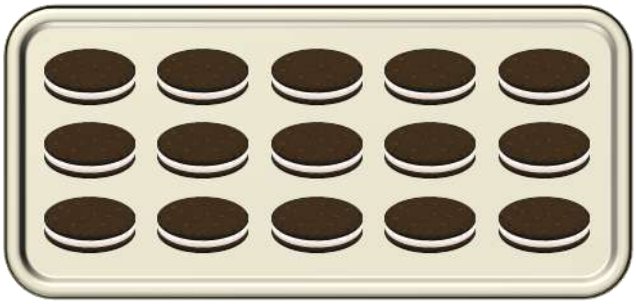
Solution: Mr. West's class has the odd number because:

$25 = 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 1$ OR
$25 = 25 + 5$

20 is even, but 5 is odd.

Task 10

A. Array:



B. Pam baked 15 cookies in all.

C. Equation: $5 + 5 + 5 = 15$

Note: It is correct if the student demonstrates 5 rows of 3 cookies, but the equation should be $3 + 3 + 3 + 3 + 3$ to reinforce the concept of rows and columns.

Task 11

Equations:

a. $3 + 3 + 3 + 3 = 12$ OR $4 + 4 + 4 = 12$

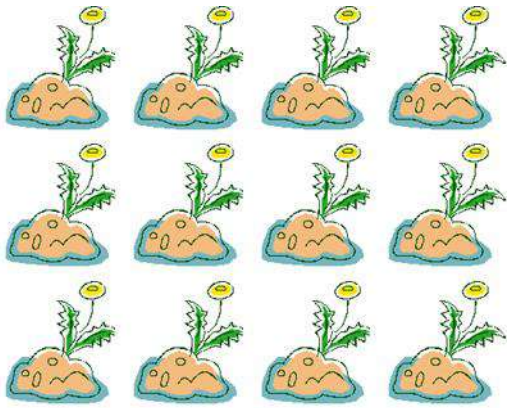
b. $5 + 5 + 5 + 5 + 5 = 25$

c. $4 + 4 = 8$ OR $2 + 2 + 2 + 2 = 8$ (less efficient)

d. $2 + 2 + 2 + 2 = 8$ OR $4 + 4 = 8$

Task 12

A. Array:



B. Mrs. Pink can plant 4 sunflower seeds in each row.

C. Equation: $4 + 4 + 4 = 12$

Number and Operations in Base Ten (NBT)

Task 13

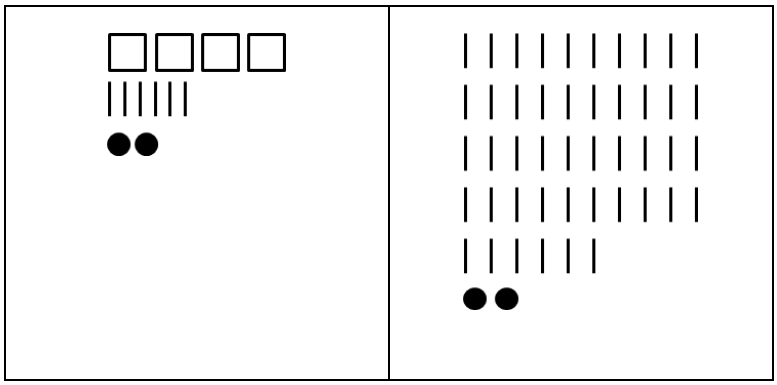
a. 739 = 7 hundreds 3 tens 9 ones

b 480 = 8 tens 4 hundreds 0 ones

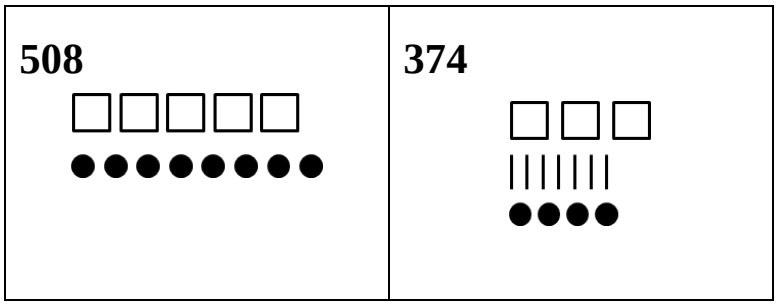
c. 402

d. 67

Task 14



Task 15



Task 16

a. 460, 470, 480, 490, 500, 510

b. 462, 562, 662, 762, 862, 962

Task 17

a. 10, 15, 20, 25, 30, 35, 40

b. No

c. Counting by 5s, so I will count 50, 55, 60 and not 58.

Task 18

a. 594

b. 213

c. 55

Task 19

a. 493

b. 4 hundred + 9 tens + 3 ones

c. 453 – removed 4 of 10 juice boxes

Task 20

	Number Form	Expanded Form
a. 6 singles, 9 packs, and 4 cases	496	4 hundreds + 9 tens + 6 ones
b. 1 pack, 3 singles, and 7 cases	713	7 hundreds + 1 ten + 3 ones
c. 8 cases, 2 singles, and 3 packs	832	8 hundreds + 3 tens + 2 ones
d. 0 packs, 5 cases, and 0 singles	500	5 hundreds + 0 tens + 0 ones
e. 1 case, 0 singles and 4 packs	140	1 hundred + 4 tens + 0 ones
f. 5 packs, 7 cases, and 0 singles	750	7 hundreds + 5 tens + 0 ones
g. 0 packs, 1 cases, and 9 singles	109	1 hundred + 0 tens + 9 ones

Task 21

a. 2 hundreds + 3 tens = 230

b. 51 = 5 tens + 1 hundred

c. 6 ones + 4 hundreds = 406

d. 9 hundreds = 900

e. 107 = 1 hundred + 0 tens + 7 ones

f. 107 = 10 tens + 7 ones

g. 107 = 107 ones

h. 80 + 300 + 4 = 384

Task 22

a. True: 48 is less than 302

b. True: 183 is less than 813

c. False: 400 is not less than 345

Task 23

Only statement b is true because

$442 = 400 + 40 + 2$

$436 = 400 + 30 + 6$

42 is more than 36

Task 24

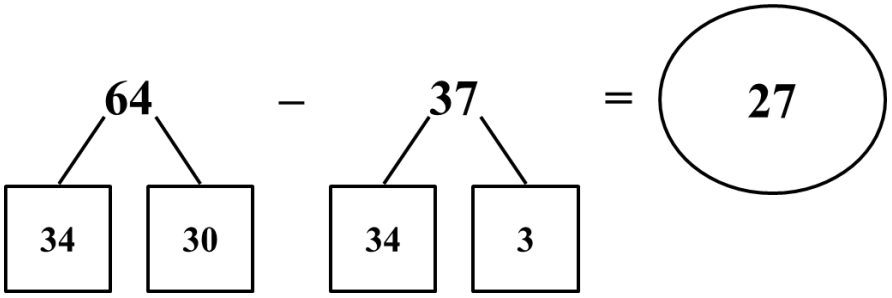
1. $110 - 10$
2. $40 + 60$
3. $112 - 12$
4. $75 + 25$

} OR equivalent expressions equal to 100

Task 25

Sum: $46 + 46 = 92$

Task 26



Task 27

a. 81

b. 104

c. 92

d. 183

e. 66

f. 183

Task 28

$58 + 93 + 92 + 31 = 274$ OR

$(50 + 8) + (90 + 3) + (90 + 2) + (30 + 1)$

Regrouping will give: $100 + 100 + 50 + 10 + 14 = 274$

Task 29

a. $388 + 307 = 695$

$(300 + 88) + (300 + 7) = 600 + 80 + 15 = 695$

b. $416 + 74 = 490$

$(400 + 16) + (70 + 4) = 470 + 20 = 490$

Task 30

a. $804 - 216 = 588$

Take away 216 from 804

Place value should be demonstrated using different strategies.

b. $736 - 570 = 166$

Task 31

a. 782

b. 472

c. 792

d. 1018

e. 363

f. 774

Task 32

631, 641, 651

184, 194, 204

803, 813, 823

Task 33

Subtract 10 from your starting number and record it in the correct space. Then subtract/add 10s to this number to get the rest of the numbers for the number line.

Task 34

1. 4 hundreds, 3 tens, 6 ones equals 536

   (4 100s) (3 10s) (1s)

2. 236 because $536 + M = 700$ M = Mary's books

Task 35

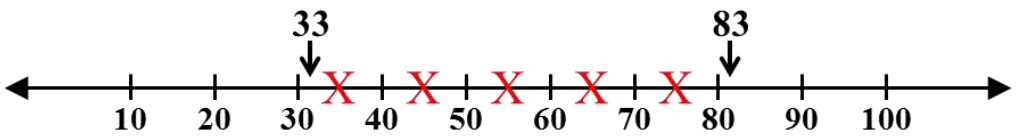
a. 494 students are on the playground

b. 394 students were playing on the field.

   Equation: $100 + \blacktriangle = 494$ OR $494 - 100 = 394$

Task 36

$83 - 50 = 33$



Measurement and Data (MD)

Task 37

Toothpick is 3 inches.

Task 38

The length, to the nearest centimeter, of one of the longer sides is 10 centimeters.

Task 39

a. 3.5 inches

b. 9.0 centimeters

Task 40

a. 6 inches

b. 16 centimeters

Task 41

Answer: A

Task 42

Pencil A:

Estimate: 10 inches

Pencil is measured at 14 centimeters

Pencil B:

Estimate: 12 inches

Pencil is measured at 16.5 centimeters

Which is the longest? Pencil B

Pencil B is 2.5 centimeters longer than Pencil A: $14 + 2.5 = 16.5$

Task 43

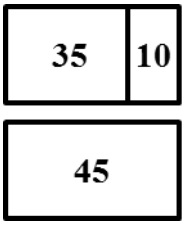
Dragonfly = 5 cm Butterfly = 8 cm

Butterfly's wingspan is 3 cm longer.

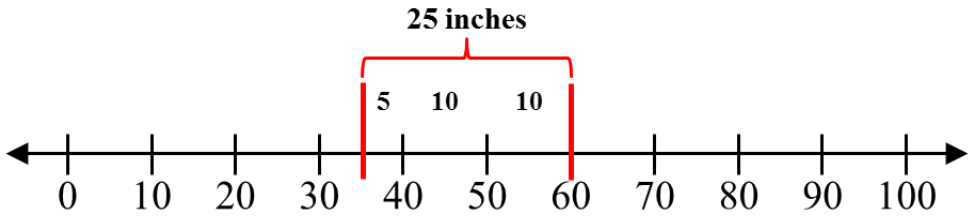
Task 44

Equation: ▲ + 10 = 45

Solve the problem:

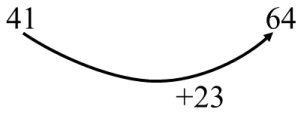


Task 45



Task 46

Answer: 23 centimeters



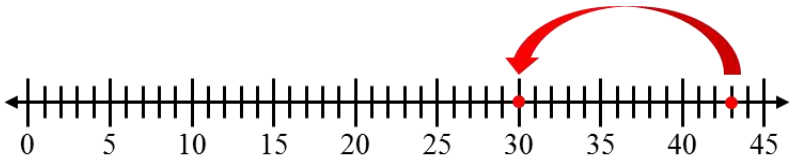
Task 47

Answer: D, 4 units long

Task 48

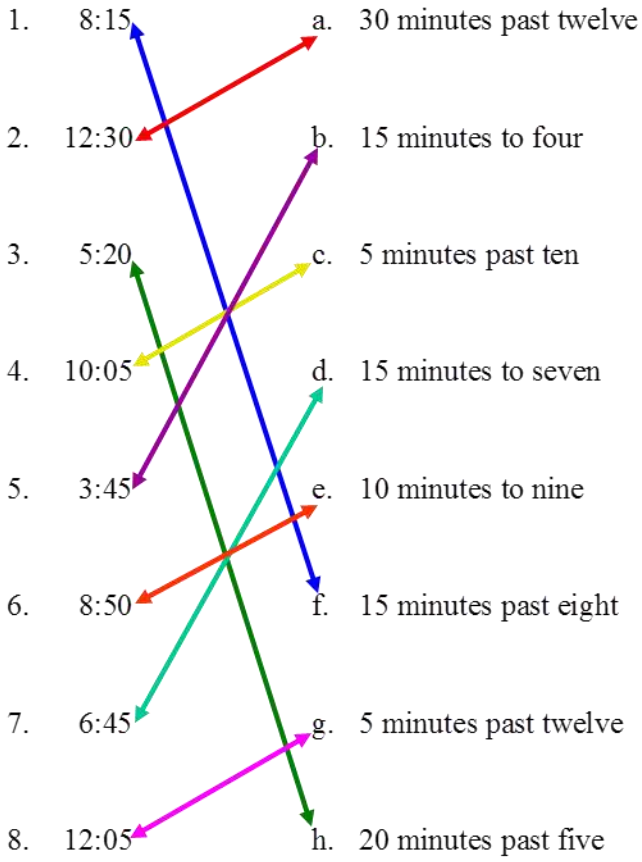
Answer: 6 + 5 = 11 Started at 0, counted up to 6 and then added 5 more to get 11.
0 + 6 + 5 = 11 is also correct.

Task 49



$43 - 13 = 30$ candies

Task 50



Task 51

Answer: No

Reason: Need to have pennies.

Task 52

Answer: C because 4 dimes = 40 pennies and 1 quarter = 25 pennies

Task 53

Answer: D

Task 54

Answers:

A. 4 seashells

B. 3 seashells

C. 16 seashells

D. 0 seashells or none

E. 3 seashells

Task 55

Answer: B

Explanation:

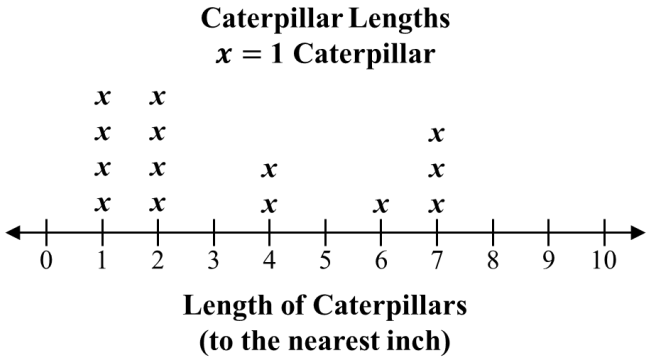
One *x* for banana means 1 banana

Three *x*'s for orange means 3 oranges

Seven *x*'s for grape means 7 grapes

Five *x*'s for apple means 5 apples

Task 56



Explanation: I measured each caterpillar in inches. I put an *x* for all 1 inch, 2 inch, 4 inch, 6 inch, and 7 inch caterpillars.

Task 57

Answers:

1. 30 students
2. 8 students
3. 8 students
4. 12 students

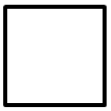
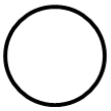
Task 58

Answers:

1. Grade 4
2. Grade 5
3. 20 students
4. 30 students

Geometry (G)

Task 59

Name of Shape	Picture	Number of Sides	Number of Corners
Hexagon		6	6
Triangle		3	3
Square		4	4
Circle		0	0
Rhombus		4	4

Task 60

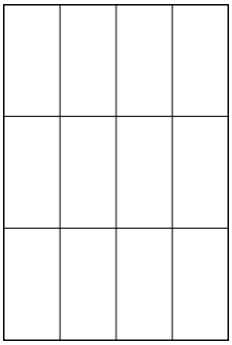
a. Hexagon

b. Rhombus (quadrilateral is also acceptable)

c. Pentagon

Task 61

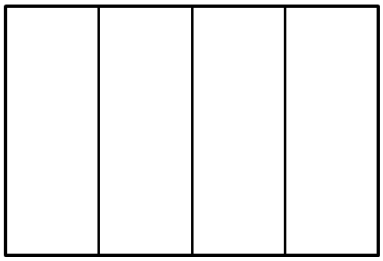
There are 12, same size squares.



Task 62

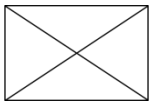
Method 1

Method 2



Method 3

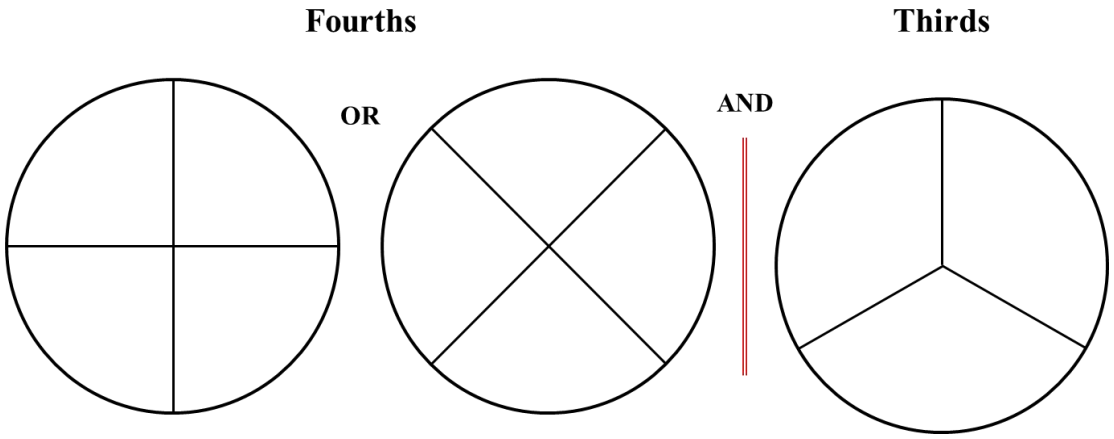
Note:



This is not acceptable—it would only be true for a square.

Explanation: There are four, equal parts/pieces in each rectangle OR each part is the same size.

Task 63



Explanation: The pizza with thirds has the largest slices of pizza because the whole is the same but there is one piece less. So, each slice is larger than a fourth.