	En Challenge #	
First Name:	Last Name:	Grade:
Teacher:	Parent's email:	

Comparing Numbers

Welcome to the first Math Challenge. In this challenge, we explore situations when one number is the same as, smaller than, or larger than another number. We compare numbers regularly in our daily lives. For example, we compare daily temperature, prices of everyday items, height or weight of two or more people, etc. When two values are equal, we use the "equals" sign or "=". When two values are not equal, we use a less than (<) or greater than (>) sign to compare them.

For this first Math Challenge, drawing diagrams and/or making an organized list may help to solve the problems. If you are new to any of the problem solving strategies, check out our complete overview of elementary problem-solving strategies at https://www.mathinaction.org/problem-solving-strategies.html.

Kinder & First Grade: solve <u>at least</u> 3 problems. Second & Third Grade: solve <u>at least</u> 7 problems. Fourth Grade and above: solve <u>at least</u> 12 problems.

		Answer
1.	In the picture below, there are only triangles, circles and squares. How many more squares	
	than circles are there in the drawing below?	
2.	Jeanine read 2 picture books and 4 chapter books this week. Liza read two picture books	
	and 5 chapter books this week. Roy read 3 picture books and 3 chapter books. Who read	
	the most number of books?	
3.	In the picture below there are only triangles, circles and squares. Logan marked all squares	
	from the drawing below. Nicole marked all triangles and circles.	
	Who marked more shapes? By how many?	
4.	Tom found six shells at the beach. Renata found twice as many. How many shells did Renata	
	find?	
5.	Laura has 3 fish tanks, each holding 4 fish. James has a total of 10 fish, all in one big fish	
	tank. Who has more fish?	

6.	Melissa went to the candy store and grabbed a large bag to fill with candy. There were 5 jars of yummy candy. At the first jar, she took 2 pieces of candy and placed them in the bag. At the second jar, she put 4 pieces in the bag and at the third jar, she put 6 pieces in the bag. She continued in this pattern with the fourth and fifth jar. Timothy also visited all 5 jars. At the first jar, he took 1 piece of candy and placed it in the bag. At the second jar, he put 4 pieces in the third jar, he put 7 pieces in the bag. He continued in this pattern with the fourt 7 pieces of candy were in Timothy's bag than in Melissa's bag?	
7.	Sangeeta is currently more than 20 years old and less than 60 years old. We can count by 7's (starting at 7) to reach Sangeeta's current age. One year from now, we will be able to count by 5's (starting at 5) to reach her age. How old is Sangeeta right now?	
8.	A box contains some buttons. Four people estimate the number of buttons in the box. Their estimates were 127, 137, 124 and 145. Among the estimations, one was off by eleven, another deviated by three, a third was off by seven, and the final estimate missed the mark by ten. How many buttons were in the box?	
9.	 Nicole loves playing fetch with her dog Zoe. Zoe always starts by sitting beside Nicole before Nicole throws the ball. When Nicole throws the ball, Zoe runs to it and brings back the ball to the same spot. Nicole throws the ball three times. The first time her throw was 8.5 yards away. The second time she throws it, it was twice as far as the first time. The third time she throws, it was 3 yards less than the second throw. How far did Zoe run in total? 	
10.	What is the greatest whole number that can be placed in each blank space to make the number sentences true? a. $4 \times \< 35$ b. $60 \times \< 250$ c. $7 \times \< 500$ d. $50 + \ \times 2 < 70$ e. $81 \times 5 - \> 360$ f. $6 \times \+ 5 < 41$	a. b. c. d. e. f.

11.	Teacher Porter asked students to do 'Partition 5'. To do	so, students split tl	he number 5 in	
different ways according to the clue(s) given. Only positive numbers will be used.				
	For examples:			
• The numbers on the outside are both twice the number in the (
	• The humbers on the outside die both twice the humber in the			
		\		
	• The first number is even all numbers are greated	rthan (===>		
	• The first humber is even, an humbers are greater	+	+ +	
	$\mathbf{U}_{\mathbf{X}} = \mathbf{U}_{\mathbf{X}} = $			
	Find the solution to each Partition problems:			
	a. Partition 34		+ +	а.
	The first two numbers are the same and are multiples of	five. The third 🐛		
	number is less than five.			
	b. Partition 34			b.
	The numbers form a sequence. Each number is five more	e than 🛛 🕂	+ +	
	the previous number.	×> ×		
	c. Partition 55			C
	The second number is twice the first. The third number i	s L		ι.
	twice the second. The fourth number is the same as the)' ()' ()	
	third			
	d Dortition EE	,		d.
a. Partition 55 The number form a company factor $(1 + 1) + (1 + 1) + (1 + 1)$				
	The numbers form a sequence. Each number is four			
	more than the previous number.			
12.	The following table shows some information about	Dinala	A	
	some of the world's tallest birds. However, the	Biras	Average Heights (in cm)	
	table is incomplete. Use the following clues to	Andrean Condor		
	complete the table	Emu		
	• The Mute Swan is EE cm shorter than the	King Donguin	00	
	• The Wille Swall is 55 cill Shutler than the		92	
	Southern Cassowary.	iviute Swan		
	Ine Wandering Albatross is / cm taller than	Ustrich		
	the Mute Swan.	Southern	155	
	 The Ostrich is 1 m taller than the Andean 	Cassowary	155	
	Condor.	Wandering		
	• The Southern Cassowary is 20 mm taller than	Albatross		
	the Emu.	Dalmatian Pelican	175	
	• The Andean Condor is 18 cm taller than the	Marabou Stork		
	King Penguin	L	<u> </u>	
	 The Marabou Stork is one and a half times the 			
	Ine marabou Stork is one and a fidir times the			
1	neight of the while Swall.			1
	Donk the hirds from shortest to tall+			
	Rank the birds from shortest to tallest.			
	Rank the birds from shortest to tallest.			

13.	a. If A is 10 less than B, find the value of A and B. A + B = 170 A = ? B = ?	A = B =
	b. If D is 47 more than C, find the value of C and D. C + D = 191 C = ? D = ?	C = D =
14.	 Benjamin, Carmine, Daiyu, and Esha shared a package of 30 cookies. After a few days, all the cookies were eaten by these four people. Each person only ate whole cookies. Benjamin noted the following: Esha ate twice as many cookies as Carmine. Daiyu ate two-thirds as many cookies as Esha. Benjamin himself ate half as many cookies as Daiyu. List the name of the people and the number of cookies they ate, from least to greatest. 	
15.	The sum of four numbers is 233. The first two numbers are the same. The third number is ten times the fourth. The second number is 70 more than the third. List the four numbers in order (first, second, third, and fourth).	
16.	a. Using only the digits 1 to 7 at most one time each, place a card in each box to make the equation true. $1 2 3 4 5 6 7$ $= 8 \bigcirc 0 \\ 1 2 3 4 5 6 7$ What is the equation?	а.
	b. Using only the digits 4 to 9 at most one time each, place a card in each box to create a true statement. All fractions must be more than ½ and less than 1. ()) < ()) < ()) < ()) How many true statements can be created?	b.

17.	17. a. If Y is twice as big as X and Z is twice as big as Y, find the value of X, Y, and Z. X + Y + Z = 560 b. If T is 30 more than S and U is three times T, find the value of S, T, and U. S - T + U = 330				a. X = Y = Z =				
					b. S = T = U =				
18.	Sherry placed the number cards 1 to 9 in a 3 by 3 grid. She then multiplied together all the numbers in each row and wrote the resulting product next to that row. She also multiplied the numbers in each column together and wrote the product under that column. She then removed all cards. Find how Sherry placed each card on the grid. 1 2 3 4 5 6 7 8 9	60	21	288	24 40 378	60	21	288	24 40 378

Solution is available on October 6, 2023 <u>www.mathinaction.org</u>