

CHAT Algebra 2 Christmas Extra Credit Puzzles

Instructions: There are 10 puzzles included here. Each is worth 2 extra credit points. You do not have to complete all of the puzzles. You will get credit for the ones you complete correctly.

PUZZLE Number 1: Adding Digits

Arrange the digits 1, 2, 3, 4, and 5, each digit used once per row, in the square below so that the sum of each row, column, and diagonal is 15. This would include “piecing diagonals together.” That is, if 3 values in a diagonal going from upper left to lower right below the major upper left to lower right diagonal were paired with the 2-value diagonal going from upper left to lower right above that same major diagonal, the sum would still be 15. The square below shows how these diagonals would be “pieced together.” The digits must be placed so the calculations can be made from upper left to lower right.

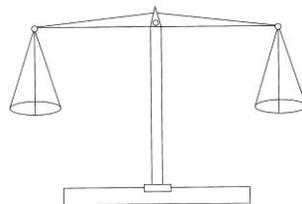
			2	
				4
1				
	3			
		5		

PUZZLE NUMBER 2: Gumballs

You notice a bag of gumballs that sells for \$3.00 at a candy store. You wonder if this is a good deal for gumballs and ask the clerk how many gumballs come in the bag. The clerk says, "Less than 100 come in the bag. Also, if you count the gum by twos, threes, or fours, one gumball would be left over each time. But none are left over if you count by fives." How many gumballs could be in the bag? (There may be more than one answer.)

PUZZLE NUMBER 3: A Weighty Problem

You are given 8 blocks that all look exactly the same. Seven of the blocks weight exactly the same amount and the remaining one, the light weight, weighs slightly less than the others. You cannot tell by looking, lifting, or guessing, which one is the light block. You do have a double pan balance (see below) that you may use to determine the answer. You may place as many blocks on each side of the scales as you wish. The light block can be identified in 2 weighings. For the solution, write a description of the 2 weighings.

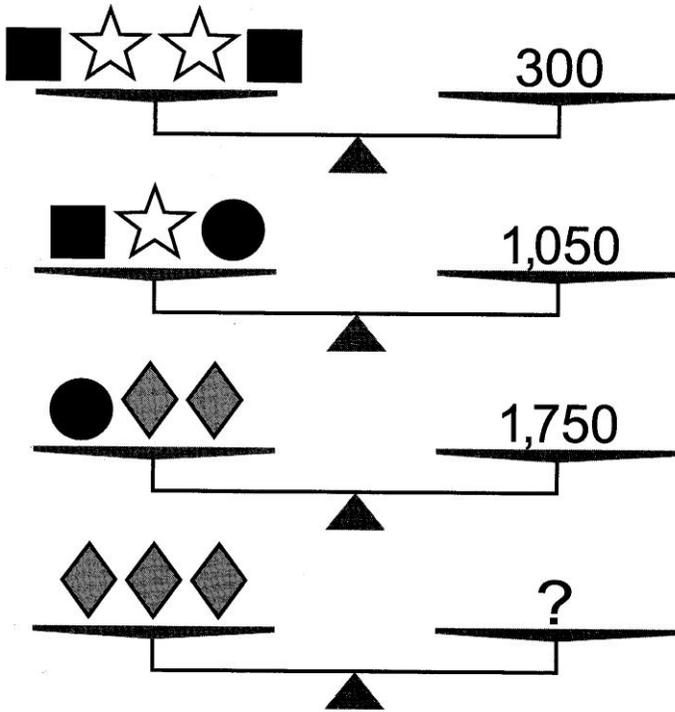


PUZZLE NUMBER 4: Another Weighty Problem

An empty container weights 20 kg. What can you put in the container to make it weight less?

PUZZLE NUMBER 5: Balance Math

Use the balanced scales to find the missing numbers.



Problem 1	
?	=

PUZZLE NUMBER 6: Find the Figure

The sum of each row is given to the right. Replace the question mark with a shape to complete the equation. (Hint: This problem is best solved using fractions.)

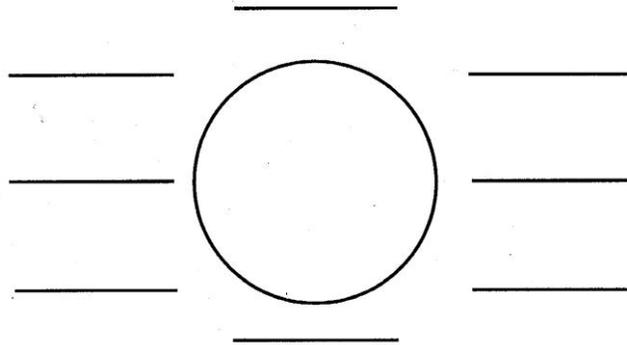
□	○	⊗	?	16
□	○	○	□	14
○	○	△	○	8
△	△	△	△	10
⊗	□	□	⊗	18

PUZZLE NUMBER 7: The Carousel Problem

Using the clues given, write the name of each person on the line indicating where he or she is seated.

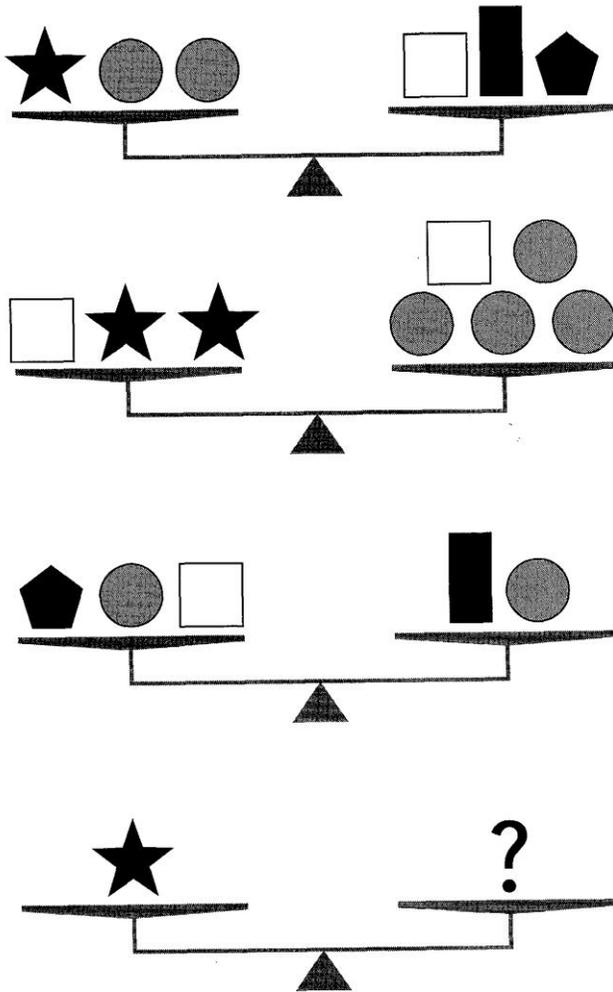
Bjorn, Bernard, Sebastian, Roland, Annette, Justine, Suki, and Monica were riding counterclockwise on an eight-horse carousel in which the horses were in single file.

1. Each boy was between two girls.
2. Roland was three horses behind Justine.
3. Annette was the next girl behind Monica.
4. The boy behind Annette was two horses ahead of Sebastian.
5. If Roland was between Annette and Monica, then Bjorn was three horses behind Bernard.
6. Bernard was three horses ahead of Suki.
7. Where in the circle was each person's horse?



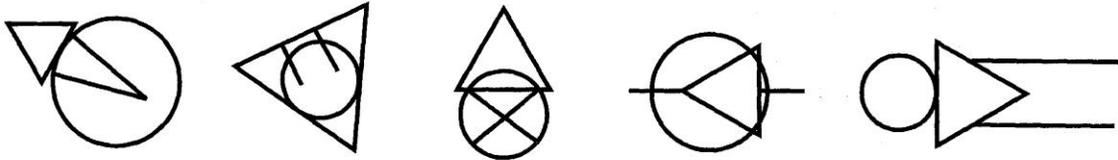
PUZZLE NUMBER 8: Balance Bender

Find the figure or combination of figures to replace the "?". (Hint: Subtract the circle from both sides of the third balance.)

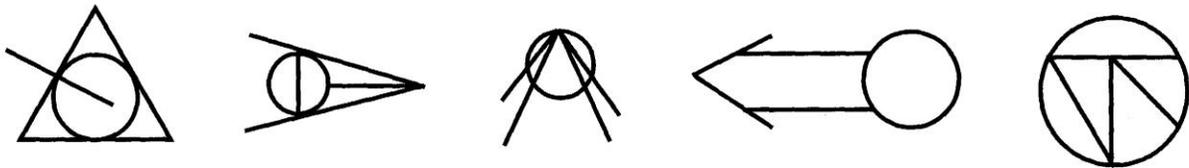


PUZZLE NUMBER 9: Jollos and Plotz

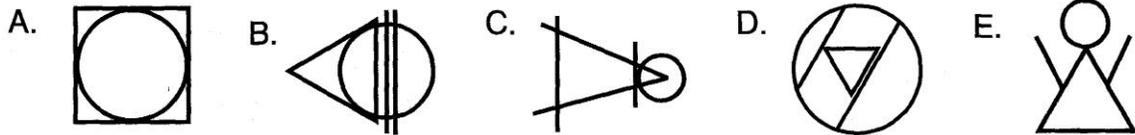
These are jollos:



These are plotz:



Which are jollos and which are plotz?



What makes a jollo a jollo?

What makes a plotz a plotz?

PUZZLE NUMBER 10: Math Maze

Begin with the number in the upper left square and travel to the lower right, calculating as you go. Can you find the solution path that meets the following restrictions?

- You may move to any adjacent (but not diagonal) square.
- You may not visit any square more than once.
- You must finish with the value shown in the last square.

Hint: No result along the way is a negative number or a fraction.

BEGIN

3	+4	-1	$\times 4$	$\div 5$
$\times 2$	-5	$\times 3$	-8	-2
$\times 0$	$\times 7$	$\div 2$	+6	$\div 3$
$\div 5$	$\times 6$	+1	$\times 5$	+2
+8	$\div 4$	+7	-9	=9

END