# Applications of Artificial Intelligence in Creative Problem Solving: Testing ChatGPT's Ability to Solve Riddles

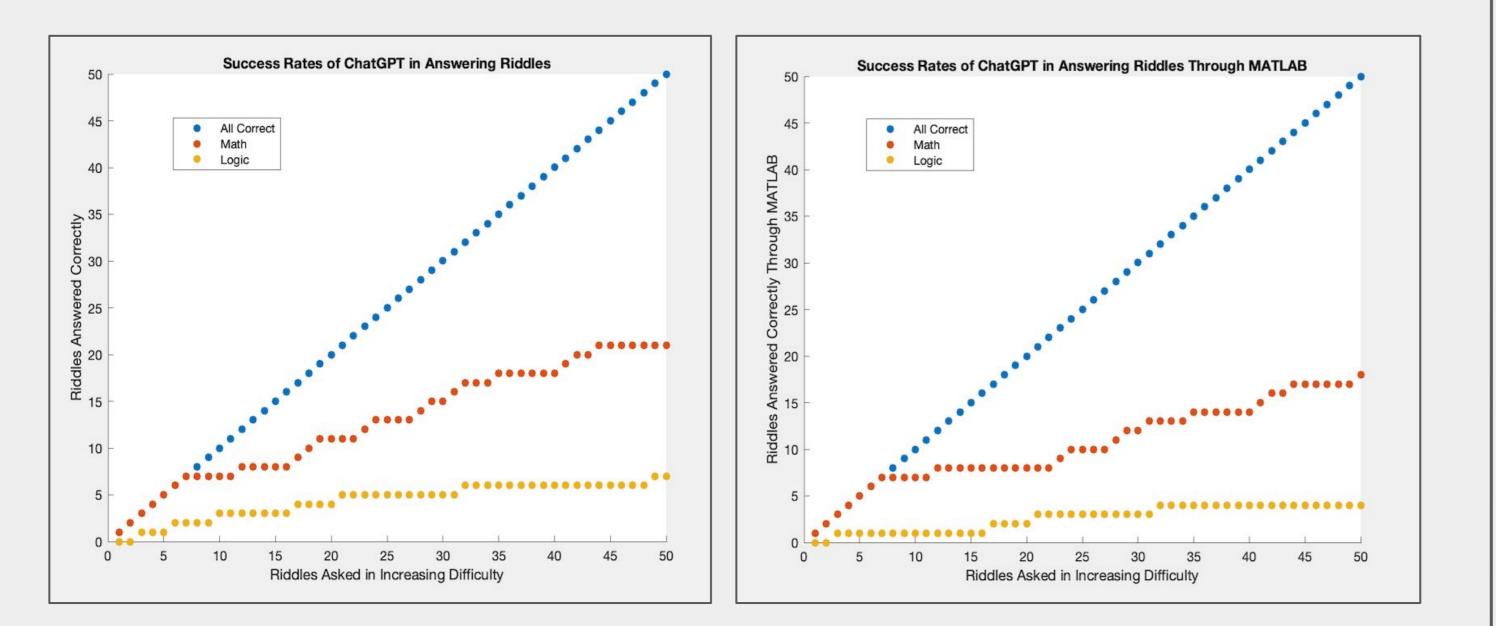
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# Abstract

My goal in this project was to determine ChatGPT's effectiveness at solving riddles. In particular I focused on 100 logical and mathematical riddles, from an obscure old book and scored ChatGPT's solutions. Overall, it was striking that ChatGPT only solved 28% of the riddles. ChatGPT was better at solving mathematical rather than logical riddles (42% versus 14%, respectively). I further tested whether ChatGPT's success rate improved when asked to produce code to solve a riddle, as this would allow the AI to algorithmically detect patterns and create a systematic way of finding a solution. In this case, ChatGPT only solved 22% of the riddles. The project illustrates that ChatGPT – though an immensely useful instrument – may at present feature limitations in regard to creative problem solving.

# Introduction

The many recent advancements in the world of Artificial Intelligence have established it as a powerful tool which can revolutionize the ways humans innovate. However, its integration extends far beyond the domains of research and technology. Several AI programs and chatbots – DALL-E, Midjourney, ChatGPT, Jasper, etc. - have proven capable of achieving "creativity," and have become daily assets for students, writers, and creators alike. ChatGPT's non-supervised pre-training is especially crucial in enabling these kinds of uses, for it allows the chatbot to retain an extensive repertoire of information and apply it in various ways that are not as specific or clear cut as solving mathematical problems.



## Results

Through experimenting with ChatGPT's riddle solving capabilities and after each riddle challenging the chatbot to make an additional attempt through MATLAB code, it became evident that various outcomes were possible. Though the most common result of the two-step process (posing the riddle and then requesting a MATLAB solution) was both answers being incorrect, there were clearly conditions that led to variation in the results. Included below are examples..

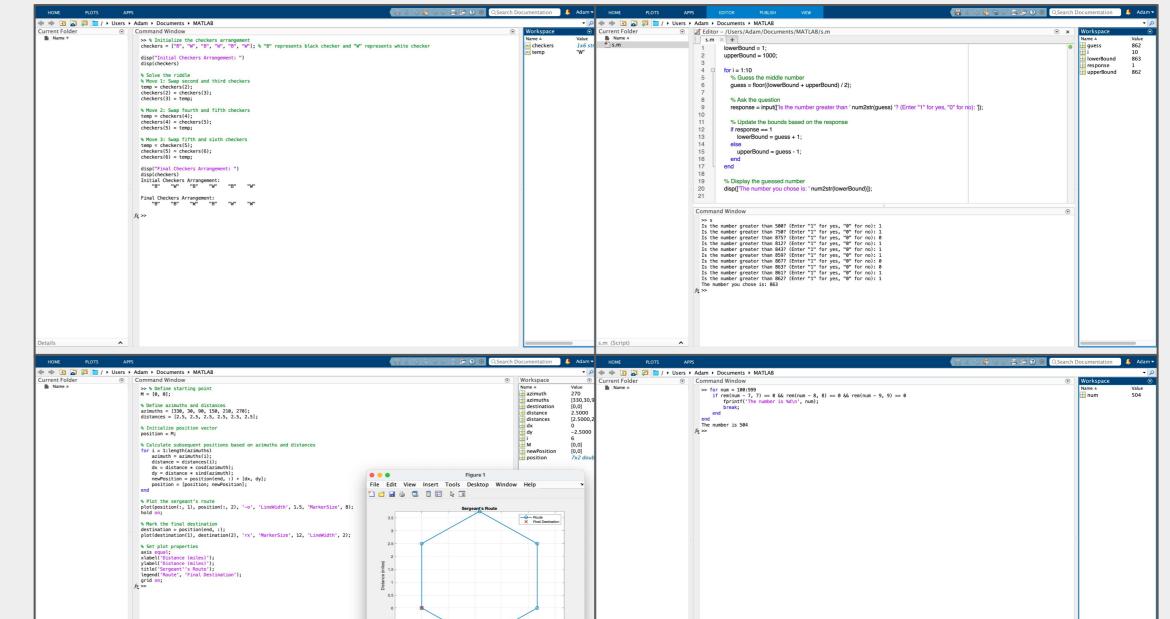


Figure 1: Scatter Plots Analyzing the Success Rates of ChatGPT in Solving the Riddles

# Methodology

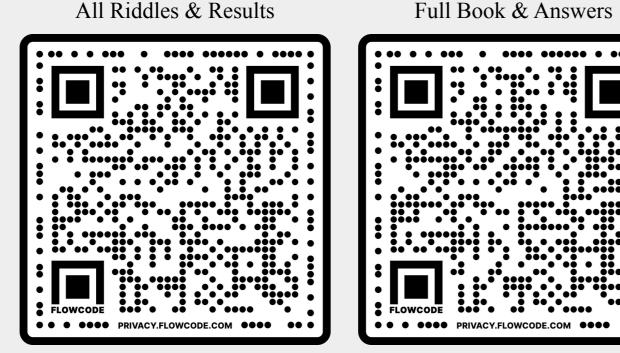
The premise of this experiment was for ChatGPT to attempt to answer one hundred riddles (fifty of which being mathematical and fifty of which being logical). After each attempted answer, ChatGPT was asked to create MATLAB code instead to solve the posed riddle. The results were recorded by the correctness of the responses.

# References

Kordemskry, Boris A. The Moscow Puzzles:

359 Mathematical Recreations. Penguin Books, 1978.

Wolfram, Stephen. What Is Chatgpt Doing ... and Why Does It Work? Wolfram Media, Inc., 2023.



### Figure 2: Examples of ChatGPT Riddle Responses

Top Left (3): both the ChatGPT answer and the MATLAB answer were incorrect. Top Right (283): both answers were correct and MATLAB answer featured a working simulation of the riddle. Bottom Left (180): both answers were correct and MATLAB answer featured a plot. Bottom Right (310): ChatGPT answer was incorrect but MATLAB answer was correct.

Total												
Riddle #	Туре	Initial	W/ MATLAB	Riddle #	Туре	Initial	W/ MATLAB	Riddle #	Туре	Initial	W/ MATLAB	Key
1	L	I	I	35	М	I	I	69	L	I	I	L - Logic
2	L	I	I	36	М	I	I	70	L	I	I	M - Math
3	L	С	С	37	М	С	С	71	L	I	I	I - Incorrect
4	L	I	I	38	М	С	С	72	М	I	I	C - Correct
5	L	I	I	39	L	I	I	73	М	I	I	X - Unanswere
6	L	С	x	40	М	I	I	74	М	I	I	
7	L	I	I	41	L	I	I	75	L	I	I	
8	L	I	I	42	М	I	I	76	L	I	I	
9	М	С	С	43	М	I	I	77	L	Ι	I	
10	М	С	С	44	L	С	С	78	L	I	x	
11	L	I	I	45	L	I	x	79	L	I	I	
12	М	С	С	46	L	I	I	80	L	I	I	
13	М	С	С	47	L	I	I	81	М	I	I	
14	М	С	С	48	L	С	С	82	L	I	I	
15	М	С	С	49	М	С	С	83	L	I	I	
16	L	С	I	50	М	С	С	84	L	I	I	
17	М	С	С	51	L	I	I	85	М	С	С	
18	L	I	I	52	L	I	I	86	М	С	С	
19	М	I	I	53	L	I	I	87	L	I	Х	
20	М	I	I	54	L	I	х	88	L	I	I	
21	М	I	I	55	М	I	I	89	L	I	I	
22	М	I	I	56	L	I	I	90	L	I	I	
23	М	С	С	57	L	I	I	91	L	С	х	
24	L	I	х	58	М	С	С	92	L	I	х	
25	М	I	I	59	L	I	I	93	М	I	I	
26	М	I	I	60	М	С	х	94	М	С	С	
27	М	I	х	61	М	I	I	95	М	I	I	
28	М	I	х	62	L	I	х	96	М	I	I	
29	L	I	х	63	М	I	I	97	М	I	I	
30	М	С	х	64	м	С	С	98	М	I	I	
31	М	С	x	65	L	I	I	99	м	I	I	
32	М	С	x	66	L	I	I	100	М	I	С	
33	М	I	I	67	м	I	I			28/100 C	22/100 C	
34	L	I	I	68	L	С	С			28%	22%	

#### Figure 3: General Results of ChatGPT's Solving of the Riddles

# 100 Mathematical and Logical Riddles:

#### Riddle 3 (1) - Logic

A craftsman goes to lunch not long after noon. As he leaves he observes the exact placement of a clock's hands. On his return he notices that As I traveled up and down our great and glorious country, I found myself in a place where the temperature goes up sharply in the day and A cubical box contains 27 congruent large balls; its twin contains 64 congruent smaller balls. All the balls are made of the same material. Place 6 checkers on a table in a row, alternating them black, white, black, white, black, white. Move the checkers so that all the white ones down at night. This had an effect on my watch. I noticed it was 1/2 minute fast at nightfall, but at dawn it had lost 1/3 minute, making it Both boxes are filled to the top. In each box, each layer has the same number of balls, and the outside balls of each layer touch the sides. the minute and hour hands have exchanged places. When does he return? will end on the left, followed by all the black ones. The checkers must be moved in pairs, taking 2 adjacent checkers at a time, without only 1/6 minute fast. Which box is heavier? Try with other numbers that are cubes. Draw a general conclusion. disturbing their order, and sliding them to a vacant place. To solve this problem, only three such moves are necessary. One morning-May 1-my watch showed the right time. By what date was it 5 minutes fast? Riddle 245B (76) - Logic Riddle 197 (53) - Logic I go for a walk, for more than 2 hours but less than 3. When I return the minute and hour hands have exchanged places. How much longer Riddle 67 (29) - Logic If you place 28 domino tiles in a continuous chain (adjacent ends of tiles must match) so that 5 dots are at one end, how many dots will be than 2 hours did the walk last? Riddle 4 (2) - Logic A house has 6 stories, each the same height. How many times as long is the ascent to the sixth floor as the ascent to the third? at the other end? Place three piles of matches on a table, one with 11 matches, the second with 7, and the third with 6. You are to move matches so that each Riddle 245C (77) - Logic pile holds 8 matches. You may add to any pile only as many matches as it already contains, and all the matches must come from one other Riddle 68 (30) - Math Riddle 198 (54) - Logic A boy begins to solve a problem at the time between 4:00 and 5:00 p.m. when the clock's hands are together. He finishes when the minute pile. For example, if a pile holds 6 matches, you may add 6 to it, no more or less. You have three moves. Conceal a tile that is not a doublet, and ask a friend to make a chain using all the dominoes. (Of course, you do not tell him that a domino is What arithmetic symbol can we place between 2 and 3 to make a number greater than 2 but less than 3? hand is exactly opposite the hour hand. How many minutes does it take him to solve the problem, and when does he finish it? missing.) You can predict what numbers will be at the ends. Explain. Riddle 69 (31) - Math Riddle 247 (78) - Logic Riddle 7 (3) - Logic If to the numerator and denominator of the fraction 1/3 you add its denominator, 3, the fraction will double. Find a fraction which will triple Riddle 217 (55) - Math Sergeant Semochkin uses every opportunity to teach his soldier-scouts observation and sharpness. He will suddenly ask them: "How many Five apples are in a basket. How do you divide them among five girls so that each girl gets an apple, but one apple remains in the basket? when its denominator is added to its numerator and its denominator. During the rebuilding after World War II, we were short of tractors. The machine and tractor stations would lend each other equipment as supports did the bride have-the one we crossed today?" Or he will set them a puzzle: "Say two of you have to cover the same distance. The needed. Three machine and tractor stations were neighbors. The first lent the second and third as many tractors as they each already had. A first scout runs half the time and walks the second half. The second scout runs halfway there and walks the rest. Neither one runs or walks Riddle 8 (4) - Logic few months later, the second lent the first and third as many as they each had. Still later, the third lent the first and second as many as they Riddle 70 (32) - Math faster than the other. Who gets there first? If they walked and then ran, who would get there first?" How many cats are in a small room if in each of the four corners a cat is sitting, and opposite each cat there sit 3 cats, and at each cat's tail a A half is a third of it. What is it? each already had. Each station now had 24 tractors. How many tractors did each station originally have? Riddle 248 (79) - Logic cat is sitting? The first dispatch said: "Train N passes me in s seconds." The second dispatch said: "Train N crossed a bridge x yards long in t seconds." If Riddle 72 (33) - Math Riddle 219 (56) - Logic train N's speed is constant, what is it, and how long is the train? Twelve flags stand equidistant along the track at the stadium. The runners start at the first flag. A runner reaches the eighth flag 8 seconds Three brothers shared 24 apples, each getting a number equal to his age 3 years before. The youngest one proposed a swap: "I will keep Riddle 10 (5) - Logic only half the apples I got, and divide the rest between you two equally. But then the middle brother, keeping half his accumulated apples, after he starts. If he runs at an even speed, how many seconds does he need altogether to reach the twelfth flag? A detachment of soldiers must cross a river. The bridge is broken, the river is deep. What to do? Suddenly the officer in charge spots 2 boys must divide the rest equally between the oldest brother and me, and then the oldest brother must do the same." They agreed. The result was Riddle 249 (80) - Logic playing in a rowboat by the shore. The boat is so tiny, however, that it can only hold 2 boys or 1 soldier. Still, all the soldiers succeed in Every station on the N railroad sells tickets to every other station. When it added some new stations, 46 additional sets of tickets had to be Riddle 73 (34) - Logic that each ended with 8 apples. How old were the brothers? crossing the river in the boat. How? printed. How many is "some"? How many stations were there before? Our man Ostap was going home from Kiev. He rode halfway-fifteen times as fast as he goes on foot. The second half he went by ox team. He can walk twice as fast as that. Would he have saved time if he had gone all the way on foot? How much? Riddle 220 (57) - Logic Riddle 11 (6) - Logic Three friends were hunting in the taiga (swampy forest of Siberia). Two of them, while fording a small stream, got their cartridge cases wet. Riddle 253 (81) - Math A man has to take a wolf, a goat, and some cabbage across a river. His rowboat has enough room for the man plus either the wolf or the goat Riddle 74 (35) - Math The three friends divided what good cartridges remained, equally. After each had fired 4 shots, the total cartridges remaining were equal to There is an interesting five-digit number. With a 1 after it, it is three times as large as with a 1 before it. What is it? or the cabbage. If he takes the cabbage with him, the wolf will eat the goat. If he takes the wolf, the goat will eat the cabbage. Only when An alarm clock runs 4 minutes slow every hour. It was set right 3½ hours ago. Now another clock, which is correct, shows noon. the number each had after the division. How many cartridges were divided? the man is present are the goat and the cabbage safe from their enemies. All the same, the man carries wolf, goat, and cabbage across the In how many minutes, to the nearest minute, will the alarm clock show noon? Riddle 255 (82) - Logic river. How? Riddle 222 (58) - Math This problem was invented by Edouard Lucas, a French nineteenth-century mathematician. "Every day at noon," Lucas said, "a ship leaves Riddle 76 (36) - Math Mother asked Vera to type a manuscript. Vera decided: "I will type an average of 20 pages a day." She typed the first half of the manuscript Le Have for New York and another ship leaves New York for Le Havre. The trip lasts 7 days and 7 nights. How many New York-Le Havre Riddle 18 (7) - Logic If you place 1 cake of soap on a pan of a scale and 3/4 cake of soap and a 3/4-pound weight on the other, the pans balance. How much does rather lazily, at 10 pages a day. To make up for it, she typed the second half at 30 pages a day. "See, I did average 20 pages a day," Vera ships will the ship leaving Le Havre today meet during its journey to New York?" Can you answer graphically? An item is made from lead blanks in a lathe shop. Each blank suffices for 1 item. Lead shavings accumulated from making 6 items can be a cake of soap weigh? concluded. "Half of 10 + 30 is 20." "No, you didn't," her mother said. Who was right? melted and made into a blank. How many items can be made from 36 blanks? Riddle 256 (83) - Logic Riddle 79 (37) - Math Riddle 223 (59) - Logic Two boys go on a bicycle trip. En route one of the bicycles breaks down and has to be left behind for repairs. They decide to share the Riddle 20 (8) - Logic Marusya, Kolya, Vanya, Andryusha, and Petya went looking for mushrooms. Only Marusya took her search seriously. The four boys spent Every time young Misha sees a stray kitten he picks up the animal and brings it home. He is always raising several kittens, but he won't tell remaining bicycle: They start simultaneously, one on bicycle, one on foot. At a certain point the cyclist dismounts, leaves the bicycle In a rectangular dance hall, how do you place 10 chairs along the walls so that there are an equal number of chairs along each wall? you how many because he is afraid you may laugh at him. Someone will ask: "How many kittens do you have now?" "Not many," he behind, and continues on foot. His friend, when he reaches the waiting bicycle, mounts it and rides until he catches up with his friend, who most of their time lying in the grass and telling stories. When it was time to return, Marusya had 45 mushrooms and the boys had none. answers. "Three-quarters of their number plus three-quarters of a kitten." His pals think he is joking. But he is really posing a problem-an Marusya was sympathetic. "It won't look good for you boys when we get back to the camp." She gave each boy some mushrooms, leaving takes the bicycle, and so on. How far from their destination should the bicycle be left behind the last time so they reach the destination Riddle 26 (9) - Math none for herself. On the way back, Kolya found 2 mushrooms and Andryusha doubled the number of the mushrooms he already had. But simultaneously? The distance from breakdown to destination is 60 miles, and they each walk 5 miles per hour and bicycle 15 miles per easy one. A nonstop train leaves Moscow for Leningrad at 60 miles per hour. Another nonstop train leaves Leningrad for Moscow at 40 miles an hour Vanya and Petya fooled around all the way. As a result, Vanya lost 2 mushrooms and Petya lost half his mushrooms. At camp they counted hour How far apart are the trains 1 hour before they pass each other? Riddle 80 (38) - Math up and each boy had the same number of mushrooms. How many mushrooms did Marusya give each boy? Riddle 257 (84) - Logic A horse travels half his route, with no load, at 12 miles per hour. The rest of the way a load slows him to 4 miles per hour. Riddle 27 (10) - Math Riddle 224 (60) - Math Write down some simple positive fractions. Make a new fraction whose numerator equals the sum of the numerators written down and What is his average speed? Not far off shore a ship stands with a rope ladder hanging over her side. The rope has 10 rungs. The distance between each rung is 12 Oarsman A rows on a river, x miles with the current and x miles against the current, Oarsman B rows 2x miles on a lake where there is no whose denominator equals the sum of the denominators written down. Is the new fraction larger than the smallest one written down, and inches. The lowest rung touches the water. The ocean is calm. Because of the incoming tide, the surface of the water rises 4 inches per hour. Riddle 81 (39) - Logic current. Does A take more time than B, or less? (Their rowing strength is the same.) smaller than the largest? Must it always be? How soon will the water cover the third rung from the top rung of the rope ladder? A passenger fell asleep on a train halfway to his destination. He slept till he had half as far to go as he went while he slept. How much of the Riddle 225 (61) - Math Riddle 258 (85) - Math whole trip was he sleeping? Riddle 35A (11) - Logic A boat is being carried away by a current. A man jumps out and swims against the current for a while, then turns around and catches up with I went to the closet while my sister was asleep, so I left the light off. I found my shoes and socks, but I must confess they were in no kind of A bus leaves Moscow for Tula at noon. An hour later a cyclist leaves Tula for Moscow, moving, of course, slower than the bus. When bus Riddle 82 (40) - Math the boat. Did he spend more time swimming against the current or catching up with the boat? We assume his muscular efforts never change order-just a jumbled pile of 6 shoes of three brands, and a heap of 24 socks, black and brown. How many shoes and socks did I have to take and bicycle meet, which of the two will be farther from Moscow? A train moving 45 miles per hour meets and is passed by a train moving 36 miles per hour. A passenger in the first train sees the second in strength.) The answer is: Both times were the same. The current carries man and boat downstream at the same speed. It does not affect with me to be sure I had a pair of matching shoes and a pair of matching socks? train take 6 seconds to pass him. How long is the second train? the distance between the swimmer and the boat. Now imagine that a sportsman jumps off a bridge and begins to swim against the current. Riddle 35B (12) - Math The same moment a hat blows off a man's head on the bridge and begins to float downstream. After 10 minutes the swimmer turns back, Riddle 259 (86) - Math Which is worth more: a pound of \$10 gold pieces or half a pound of \$20 gold pieces? Riddle 83 (41) - Logic reaches the bridge, and is asked to swim on until he catches up with the hat. He does, under a second bridge 1,000 yards from the first. The Three kinds of apples are mixed in a box. How many apples must you take to be sure of at least 2 apples of one kind? At least 3 apples of After a cyclist has gone two-thirds of his route, he gets a puncture. Finishing on foot, he spends twice as long walking as he did riding. How swimmer does not vary his effort. What is the speed of the current? one kind? Riddle 35C (13) - Math many times as fast does he ride as walk? At six o'clock the wall clock struck 6 times. Checking with my watch, I noticed that the time between the first and last strokes was 30 Riddle 260 (87) - Logic Riddle 226 (62) - Logic seconds. How long will the clock take to strike 12 at midnight? Riddle 84 (42) - Math Two diesel ships leave a pier simultaneously, the Stepan Razin downstream and the Timiryazev upstream, with the same motive force. As It is raining at midnight – will we have sunny weather in 72 hours? Volody A. and Kostya B., students in a metal-trade school, are doing lathework. Their foreman-teacher assigns them to make batches of they leave, a life buoy falls off the Stepan Razin and floats downstream. An hour later both ships are ordered to reverse course. Will the Riddle 37 (14) - Math metal parts. They want to finish simultaneously and ahead of the deadline, but after a while Kostya has only done half of what Volodya has Stepan Razin's crew be able to pick up the buoy before the ships meet? Riddle 264 (88) - Logic A book costs \$1 plus half its price. How much does it cost? left to do, and this is half what Volodya has already done. How much faster than Volodya does Kostya have to work so they finish at the "Your pencils, notebooks, and colored paper cost \$1.70." "I bought 2 pencils at 2 cents each and 5 pencils at 4 cents each – and 8 notebooks Riddle 227 (63) - Math same time? and 12 sheets of colored paper, I don't remember the prices. But the bill can't be \$1.70." Why not? Riddle 38 (15) - Math Motorboat M leaves shore A as N leaves B; they move across a lake at constant speed. They meet the first time 500 yards from A. Each Two cyclists began a training run simultaneously, one starting from Moscow, the other from Simferopol. When the riders were 180 miles Riddel 85 (43) - Math returns from the opposite shore without halting, and they meet 300 yards from B. How long is the lake and what is the relation between the Riddle 274 (89) - Logic apart, a fly took an interest. Starting on one cyclist's shoulder, the fly flew ahead to meet the other cyclist. On reaching the latter, the fly at Masha had to find the product of three numbers in order to calculate the volume of some soil. She multiplied the first number by the second two boats' speeds? A motorcyclist was sent by the post office to meet a plane at the airport. The plane landed ahead of schedule, and its mail was taken toward once turned back. The restless fly continued to shuttle back and forth until the pair met; then it settled on the nose of one of the cyclists. The correctly and was about to multiply the result by the third number when she noticed that the second number had been written incorrectly. It the post office by horse. After half an hour the horseman met the motorcyclist on the road and gave him the mail. The motorcyclist returned fly's speed was 30 miles per hour. Each cyclist's speed was 15 miles per hour. How many miles did the fly travel? to the post office 20 minutes before he was expected. How many minutes early did the plane land? was one-third larger than it should be. To avoid recalculating, Masha decided it would be safe to merely lower the third number by one-third Riddle 229 (64) - Math Given two numbers, if we subtract half the smaller number from each number, the result with the larger number is three times as large as the of itself--particularly since it equaled the second number. "But you shouldn't do that," a girl friend said to Masha. "If you do, you will be Riddle 39 (16) - Logic

#### Riddle 66 (28) - Math

wrong by 20 cubic yards." "Why?" said Masha. Why indeed? And what is the correct soil volume?

#### Riddle 189 (52) - Logic

result with the smaller number. How many times is the larger number as large as the smaller number?

# Riddle 245A (75) - Logic

Riddle 275 (90) - Logic

very day by train to the city where he works. At 8:30 a m, as soon as he gets off the train a car nicks him up and takes

When was the latest year that is the same upside down?

when was the fatest year that is the same upside down:			An engineer goes every day by train to the city where he works. At 8:30 a.m., as soon as he gets off the train, a car picks him up and takes
	Riddle 86 (44) - Logic	Riddle 230 (65) - Logic	him to the plant. One day the engineer takes a train arriving at 7:00 a.m., and starts walking toward the plant. On the way, the car picks him
Riddle 41 (17) - Math	Mother makes tasty toast in a small pan. After toasting one side of a slice, she turns it over. Each side takes 30 seconds. The pan can only	A diesel ship leaves on a long voyage. When it is 180 miles from shore, a seaplane, whose speed is ten times that of the ship, is sent to	up and he arrives at the plant 10 minutes early. When does he meet the car?
When my father was 31 I was 8. Now he is twice as old as I am. How old am I?	hold two slices. How can she toast both sides of three slices in 11/2 instead of 2 minutes?	deliver mail. How far from shore does the seaplane catch up with the ship?	
			Riddle 278 (91) - Logic
Riddle 45 (18) - Logic	Riddle 92 (45) - Logic	Riddle 232 (66) - Logic	Three puzzle competitors are blindfolded. A white piece of paper is glued to each one's forehead and they are told that not all the pieces of
A boy has as many sisters as brothers, but each sister has only half as many sisters as brothers.	The theme of this problem goes back many centuries. Three girls, each with her father, go for a stroll. They come to a small river. One boat,	State prize-winning lathe turner P. Bykov reduced the time to process a metal part from 35 minutes to 2 ½. He increased his cutting speed	paper are black. The blindfolds are removed and the prize goes to the first man to deduce whether the paper on his forehead is white or
How many brothers and sisters are there in the family?	able to carry two persons at a time, is at their disposal. Crossing would be simple, except for the girls' whim: none is willing to be in the	by 1,690 inches per minute-to how much?	black. All three announce white at the same time. Why?
	boat or ashore with one or two strange fathers unless her own father is present too. The girls, of course, can row. How do they all get		
Riddle 46A (19) - Math	across?	Riddle 233 (67) - Math	Riddle 279 (92) - Logic
Combine plus signs and five 2s to get 28.		Jack London tells how he raced from Skagway in a sled pulled by 5 huskies to reach the camp where a comrade was dying. For 24 hours the	Three ancient Greek philosophers took a nap under a tree. While they were asleep, a prankster smeared their faces with charcoal. On
	Riddle 95 (46) - Logic	huskies pulled the sled at full speed. Then 2 dogs ran off with a pack of wolves. London, left with 3 dogs, was slowed down proportionally.	
Riddle 46B (20) - Math			awakening, they began to laugh, each thinking the other two were laughing at each other. Suddenly one man stopped laughing. How did he
Combine plus signs and eight 8s to get 1000.	Take 4 black and 4 white checkers (or 4 pennies and 4 other coins and put them on a table in a row, white, black, white, black, and so on.	He reached camp 48 hours later than he had planned. If the runaway huskies had stayed in harness for 50 more miles, London writes, he	realize his own face was also smeared?
	Leave a vacant place at one end which can hold 2 checkers. After 4 moves, all the black checkers should be on one side and the white ones	would have been only 24 hours late. How far is the camp from Skagway?	
Riddle 47A (21) - Math	on the other. A move consists of shifting 2 adjacent checkers, keeping their order, into any vacant space.		Riddle 282 (93) - Math
Express 100 with five 1s. You can use brackets, parentheses, and these signs: +, -, X, /. You can also combine digits.		Riddle 236A (68) - Logic	A child's age increased by 3 years gives a number which has an integral square root. Decreased by 3 years, the child's age gives the square
Express 100 with rive 13. Tou can use brackets, parentifeses, and these signs. +, -, X, /. Tou can also combine tights.	Riddle 178 (47) - Logic	I have 2 children. They aren't both boys. What is the probability that both children are girls?	root. How old is the child?
Riddle 47B (22) - Math	A craftsman was making a children's game in which letters and figures are pasted on wooden cubes. But he needed twice the surface area he		
	had available. How did he get it without adding any cubes?	Riddle 236B (69) - Logic	Riddle 283 (94) - Math
Express 100 with five 5s. You can use brackets, parentheses, and these signs: +, -, X, /. You can also combine digits.		An artist has 2 children. The older is a boy. What is the probability that both children are boys?	Ask a friend to pick a number from 1 through 1,000. After asking him ten questions that can be answered yes or no, you tell him the
	Riddle 179 (48) - Logic		number. What kind of questions?
Riddle 53 (23) - Math	The builders of an irrigation canal needed a lead plate of a certain size, but had no lead in stock. They decided to melt some lead shot. But	Riddle 237 (70) - Logic	
How many pluses should we put between the digits of 987,654,321 to get a total of 99, and where?	how could they find its volume beforehand? One suggestion was to measure a ball, apply the formula for the volume of a sphere, and	One day a young man and an older man left the village for the city, one on horse, one in a car. Soon it was apparent that if the older man had	Riddle 285 (95) - Math
	multiply by the number of balls. But this would take too long, and anyway the shot wasn't all the same size. Another was to weigh all the	ridden three times as far as he had, he would have half as far to ride as he had, and if the young man had ridden half as far as he had, he	You pick up 1 through 6 of 30 matches. The second player picks up 1 through 6 matches, and so on. The player who picks up the last match
Riddle 58 (24) - Logic	shot and divide by the specific gravity of lead. Unfortunately, no one could remember this ratio, and there was no manual in the field shop.	would have three times as far to ride as he had. Who rode the horse?	wins. How do you get to pick up the last match?
My only timepiece is a wall clock. One day I forgot to wind it and it stopped. I went to visit a friend whose watch is always correct, stayed	Another was to pour the shot into a gallon jug. But the volume of the jug is greater than the volume of the shot by an undetermined amount,		
awhile, and returned home. There I made a simple calculation and set the clock right. How did I do this when I had no watch on me to tell	since the shot cannot be packed solid and part of the jug contains air. Do you have a suggestion?	Riddle 238 (71) - Logic	Riddle 286 (96) - Math
how long it took me to return from my friend's house?		Two motorcyclists started at the same time, covered the same distance, and returned home at the same time. But one rode twice as long as	Two players pick up 1 through 4 of 27 matches until they are all picked up. You are the first player. To win, you must have an even number
	Riddle 180 (49) - Math	the other rested on his trip, and the other rode three times as long as the first one rested on his trip. Who rode faster?	of matches at the end. How do you win this game?
Riddle 61 (25) - Math	A sergeant left point M along azimuth 330°. On reaching a small hill, he walked along azimuth 30° until he came to a tree. Here he made a		or matches at the end. How do you will this game.
A factory making measuring equipment urgently needed by the famous Tsimlyansk power installation has a brigade of ten excellent	60° turn to the right. He reached a bridge, then walked beside a river along azimuth 150°. Half an hour later he was at a mill. He changed	Riddle 241 (72) - Math	Riddle 290 (97) - Math
workers: the chief (an older, experienced man) and 9 recent graduates of a manual training school. Each of the nine young workers produces	<sup>3</sup> his direction again, walking along azimuth 210°, his goal being the miller's house. At the house he again turned right and, walking along	Two candles have different lengths and thicknesses. The long one can burn $3\frac{1}{2}$ hours; the short one, 5 hours. After 2 hours burning, the	A calls 7, B 12, A 22, B 23, and so on. Each call is higher by any number from 1 through 10. Whoever calls 100 wins. How does A win?
15 sets of equipment per day, and their chief turns out 9 more sets than the average of all ten workers. How many sets does the brigade	azimuth 270, finished his tour. Using a protractor, draft the sergeant's route neatly and where he got to. He walked 2 <sup>1</sup> / <sub>2</sub> miles along each	candles are equal in length. Two hours ago, what fraction of the long candle's height gave the short candle's height?	A cans 7, B 12, A 22, B 25, and so on. Each can is higher by any humber from 1 through 10. whoever cans 100 whis. How does A whi?
produce in a day?		candles are equal in length. Two nours ago, what fraction of the long candle's height gave the short candle's height?	Riddle 308 (98) - Math
	azimuth.		
Riddle 62 (26) - Math	$D_{1}^{1} J J_{2}^{1} = 104 (50) - M_{2} J_{2}^{1}$	Riddle 243 (73) - Math	Is there a number which when divided by 3 gives a remainder of 1; when divided by 4, gives a remainder of 2; when divided by 5, gives a
A collective farm was due to deliver its quota of grain to the state authorities. The management of the kolkhoz decided the trucks should	Riddle 184 (50) - Math	A wall clock loses 2 minutes in an hour. A table clock gets 2 minutes ahead of the wall clock in an hour. An alarm clock falls 2 minutes	remainder of 3; and when divided by 6 gives a remainder of 4?
arrive in the city at exactly 11:00 A.M. If the trucks traveled at 30 miles per hour they would reach the city at ten, an hour early; at 20 miles	One invention saves 30% on fuel; a second, 45%; and a third, 25%. If you use all three inventions at once can you save 100%? If not, how	behind the table clock in an hour. A wristwatch gets 2 minutes ahead of the alarm clock in an hour. At noon all four timepieces were set	
an hour they would arrive at noon, an hour late. How far is the kolkhoz from the city, and how fast should the trucks travel to arrive at 11:00	iliucii?	correctly. To the nearest minute, what time will the wristwatch show when the correct time is 7:00 p.m.?	Riddle 309 (99) - Math
A.M.?			A woman was carrying a basket of eggs to market when a passerby bumped her. She dropped the basket and all the eggs broke. The
/ 1.1VI. :	Riddle 185 (51) - Logic	Riddle 244 (74) - Math	passerby, wishing to pay for her loss, asked: "How many eggs were in your basket?" "I don't remember exactly," the woman replied, "but I
Riddle 63 (27) - Math	A bar weighs more than 15 pounds and less than 20. Can you find its exact weight with small spring scales, each of which has a maximum	My watch is 1 second fast per hour and Vasya's is 1 <sup>1</sup> / <sub>2</sub> seconds slow per hour. Right now they show the same time. When will they show the	do recall that whether I divided the eggs by 2, 3, 4, 5, or 6, there was always 1 egg left over. When I took the eggs out in groups of 7, I
	load of 5 pounds?	same time again? When will they show the same correct time again?	emptied the basket." What is the least number of eggs that broke?
Two schoolgirls were traveling from the city to a dacha (summer cottage) on an electric train. "I notice," one of the girls said, "that the			
dacha trains coming in the opposite direction pass us every 5 minutes. What do you think-how many dacha trains arrive in the city in an			Riddle 310 (100) - Math
hour, given equal speeds in both directions?" "Twelve, of course," the other girl answered, "because 60 divided by 5 equals 12." The first			I am thinking of a three-digit number. If you subtract 7 from it, the result is divisible by 7; if 8, divisible by 8; and if 9, divisible by 9. What
girl did not agree. What do you think?			is the number?