



Individual Test 5th/6th

1	Find the sum of the number of sides on a square and the number of sides on a triangle.
2	What is the difference between the number of days in a leap year and the number of months in a year?
3	Evaluate: $56 \div 4$
4	Find x : $2x + 4 = 3x + 1$
5	If m is the side length of a square, then what is the area of the square?
6	Sophia flips a fair, 2-sided coin four times. How many times can she expect heads to show up?
7	In a certain equation, $xy = 3z$. If $x = 6$ and $y = 4$, what is the value of z ?
8	Evaluate: $2 \times 2 \times 2 \times 2$
9	Evaluate: $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12$
10	The number of gifts that Austin receives is one more than half the number of gifts that Emily receives. The number of gifts that Emily receives is seven less than three times the number of gifts that Austin receives. How many gifts did Austin receive?
11	Evaluate: $\frac{2}{3} \times \frac{3}{4} \times \frac{4}{5}$
12	Michael has 2009 brownies. He splits them evenly into 7 baskets, giving 6 baskets to friends and keeping 1 basket for himself. How many brownies does Michael have now?
13	At McDonald's, large fries cost \$2.30, and a 12-ounce Oreo McFlurry costs \$2.74. After an intense math club practice, Kevin and Andrew go to McDonald's and buy 4 large fries and 3 12-ounce Oreo McFlurries. How much money did they spend?
14	The square root of 11 is between which two positive integers?
15	In the 2-dimensional coordinate system, Samir is standing at (4, 8). How far away is he from (4, 97)?
16	A square of area 9 ft^2 has its side lengths doubled. What is the square's new area in square feet?
17	Hokwen and Hojin are playing Yu-Gi-Oh. Hojin has 8000 life points. Hokwen has 6300 life points. Hokwen attacks Hojin's life points directly, and Hojin loses 1200 life points. Now, how many life points do they have combined?
18	What is the slope of the line defined by $3x + 5y = 2$?
19	What is the least common multiple of 12 and 9?
20	Maverick flies a plane at 360 kilometers per hour. After flying for 1 hour and 15 minutes, how far has he flown?

21	Sellenna is buying gifts for Kevin, Min Kyung, Hannah, and Mark. She decides to give each person a number of gifts equal to his/her grade level. Kevin is the only 12 th grader. Sellenna buys 43 gifts. Given that there are no 9 th graders, how many 10 th graders are there?																									
22	Rixing and Venecia are running a race. Rixing gets a 10 minute head start. When Venecia starts running, Venecia runs twice as fast as Rixing. How many minutes does it take for Venecia to catch up to Rixing?																									
23	Steven and Lisa took a tough calculus test. Their average score was 90%. Given that Lisa scored 8% higher than Steven, what did Steven score?																									
24	Mr. Vu knew that many of his Advanced Calculus students weren't doing their homework, so he wanted to kick their butt. He gave them a very hard test. The scores in his class were: 68, 72, 54, 15, 96, 85, 90, 72, 60, 57, and 2. What was the average class score?																									
25	A right triangle has legs of length 7 and 24. What is the length of its hypotenuse?																									
26	Today is Saturday, December 12, 2009. On what day of the week does 2010 begin?																									
27	Crystal goes to the store to buy eggs. Brand A sells a carton of 12 eggs for \$3.29. Brand B sells a carton of 18 eggs for \$4.99. The Costco brand (Brand C) sells a carton of 72 eggs for \$19.99. Which brand is the best deal?																									
28	Evaluate: $(2 + \sqrt{53} \times 5)^0 + (3 \times 4 + \sqrt[3]{-8})^2$																									
29	Evaluate: 7!																									
30	Find the determinant: $\begin{vmatrix} 10 & 4 \\ 7 & 3 \end{vmatrix}$																									
31	The number $23a74b$ is divisible by 9 and 8, where a and b represent distinct digits of the number. What is $a - b$?																									
32	Sandy goes to buy a sandwich. She must choose between whole wheat, Italian, white, or pumpkin bread. She can choose to have swiss, cheddar, colby, brie, pepperjack, or no cheese at all. She must have either roast beef, turkey, ham, or chicken in her sandwich. She must choose two other ingredients, choosing from tomato, lettuce, cucumber, green pepper, mustard, and olives. How many different sandwiches could Sandy order?																									
33	<p>Brian and Andrew were playing StarCraft against each other. When the game begins, each player's race is determined randomly, with each of the three races having $\frac{1}{3}$ probability of showing up. For a given matchup, the victor is shown. What is the probability that Brian wins?</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="3">Andrew</th> </tr> <tr> <th>Terran</th> <th>Protoss</th> <th>Zerg</th> </tr> </thead> <tbody> <tr> <th rowspan="4">Brian</th> <th>Terran</th> <td>Brian</td> <td>Brian</td> <td>Andrew</td> </tr> <tr> <th>Protoss</th> <td>Brian</td> <td>Brian</td> <td>Brian</td> </tr> <tr> <th>Zerg</th> <td>Andrew</td> <td>Brian</td> <td>Brian</td> </tr> <tr> <th></th> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Andrew			Terran	Protoss	Zerg	Brian	Terran	Brian	Brian	Andrew	Protoss	Brian	Brian	Brian	Zerg	Andrew	Brian	Brian				
				Andrew																						
		Terran	Protoss	Zerg																						
Brian	Terran	Brian	Brian	Andrew																						
	Protoss	Brian	Brian	Brian																						
	Zerg	Andrew	Brian	Brian																						

34	Follow these instructions carefully: start with the number of states in the United States. Multiply by 3. Add the number hours in a day. Multiply by the number of races in StarCraft. Subtract the positive difference between 5 and its square, minus 1. Multiply by the number of wheels on a bicycle. Add the number of wheels on a unicycle. Multiply by the number of wheels on a tricycle. Take the sum of the digits in this number. Multiply by this question number. Subtract 29. Divide by 5. Find the sum of the positive integer divisors of this number. This number is the answer to this question.
35	Jesse felt a pang of guilt for eating Mr. Nonis's trail mix. He confessed to Mr. Nonis, and Mr. Nonis makes Jesse a deal: if Jesse rolls a pair of fair, six-sided dice and gets doubles (both dice show the same number), Jesse gets off free. If not, then Jesse has to mop the floor of the school. What is the probability that Jesse has to mop the floor?
36	Shawn and Arnie were playing a game of ping-pong. Jingpeng walks by. If the ping-pong ball is on Shawn's side of the table, Shawn has a $\frac{5}{18}$ probability of hitting Jingpeng with the ping-pong ball. If the ping-pong ball is on Arnie's side of the table, Arnie has a $\frac{4}{9}$ probability of hitting Jingpeng with the ping-pong ball. Given that the ping-pong ball has an equal probability of being on either side of the table, what is the probability that Jingpeng is struck by the ping-pong ball the next time Arnie or Shawn hits the ball?
37	How many prime numbers less than 90 are there?
38	Convert: 21001_4 to base 2.
39	When an exclamation mark appears after a number, that is the notation for factorial. To find the factorial of a number, multiply all positive integers from 1 to the number together. For example, $3!$ is $1 \times 2 \times 3$. To find the determinant of a two-by-two matrix, multiply the top-left number by the bottom-right number, and subtract the product of the top-right number and the bottom-left number. What is the sum of the answers to questions 1, 2, and 3?
40	Lord Voldemort is buying snakes. There are an infinite number of four varieties of snakes: garter snakes, king cobras, boa constrictors, and coral snakes. Lord Voldemort wants to buy six snakes. How many ways can he choose the snakes (assume all snakes of the same species are indistinct)?