SM3

Team ID

1A. Eddie converts his 14 quarters and 5 dimes into nickels and pennies. If he has 65 pennies after converting, how many nickels does he have?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

1A. Eddie converts his 14 quarters and 5 dimes into nickels and pennies. If he has 65 pennies after converting, how many nickels does he have?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

2A. What is $(4 + 16) \times (75 \div 13) \times (8 - 8) \times (9 \times 11)$?

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

2A. What is $(4 + 16) \times (75 \div 13) \times (8 - 8) \times (9 \times 11)$?

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

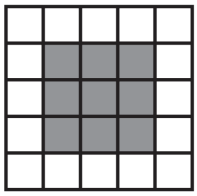
ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

3A. What percentage of blocks are not shaded in?



DO NOT MARK

Attempt #1 Attempt #2 Attempt #3

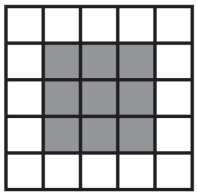
ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

3A. What percentage of blocks are not shaded in?



DO NOT MARK

Attempt #1 Attempt #2 Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

4A. A pizza costs $24 and is cut into 8 equal slices. If Abi ate 2 slices and Nancy ate 5 slices, what is the positive difference between the cost of the slices that Abi ate and the cost of the slices that Nancy ate?

DO NOT MARK

Attempt #1 Attempt #2 Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

4A. A pizza costs $24 and is cut into 8 equal slices. If Abi ate 2 slices and Nancy ate 5 slices, what is the positive difference between the cost of the slices that Abi ate and the cost of the slices that Nancy ate?

DO NOT MARK

Attempt #1 Attempt #2 Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

5A. Round 14π to the nearest integer.

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

5A. Round 14π to the nearest integer.

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

1B. Compute $\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}-\frac{1}{6}$.

DO NOT MARK

Attempt #1 Attempt #2 Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

1B. Compute $\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}-\frac{1}{6}$.

DO NOT MARK

Attempt #1 Attempt #2 Attempt #3

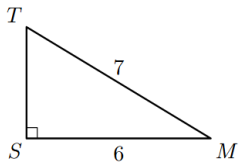
ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

2B. Right triangle $\triangle SMT$ has lengths $MS = 6$ and $MT = 7$, and a right angle at S. Find the value of TS^2.



DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

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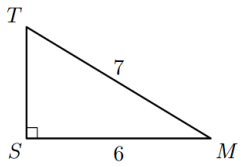

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

3B. A movie theater sells a 16-ounce soda for $4. If prices of drinks at this theater are directly proportional to the sizes of the sodas, what is the price of a 20-ounce drink?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

3B. A movie theater sells a 16-ounce soda for $4. If prices of drinks at this theater are directly proportional to the sizes of the sodas, what is the price of a 20-ounce drink?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

4B. A squirrel hid 240 acorns before winter. 32 acorns were found and eaten by a chipmunk during the winter, and of the rest, only 75% were picked up by the squirrel in spring. How many hidden acorns are still left in the ground?

DO NOT MARK

Attempt #1 Attempt #2 Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK DO NOT MARK DO NOT MARK

SM3

Team ID

4B. A squirrel hid 240 acorns before winter. 32 acorns were found and eaten by a chipmunk during the winter, and of the rest, only 75% were picked up by the squirrel in spring. How many hidden acorns are still left in the ground?

DO NOT MARK

Attempt #1 Attempt #2 Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK DO NOT MARK DO NOT MARK

SM3

Team ID

5B. If there are 5 volbs in a zorb, 6 zorbs in 5 worbs, and 2 worbs in a torb, how many torbs are in 360 volbs?

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

5B. If there are 5 volbs in a zorb, 6 zorbs in 5 worbs, and 2 worbs in a torb, how many torbs are in 360 volbs?

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

1C. Amelia is filling spherical balloons with air for her friend's birthday. She realizes that she has 4 balloons of radius 5 inches and 7 balloons of radius 4 inches. What is the ratio between the amount of air she needs to completely fill all the balloons of radius 4 inches and the amount of air she needs to completely fill all the balloons of radius 5 inches?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

2C. An ice cream stand sells $8 worth of ice cream every 7 minutes they are open. The store opens from 8:00 AM to 10:00 PM, but is closed from 11:00 AM to 12:10 PM for a lunch break, and closes for three additional 14-minute breaks during the day. How many dollars of ice cream does the shop sell in a day?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

2C. An ice cream stand sells $8 worth of ice cream every 7 minutes they are open. The store opens from 8:00 AM to 10:00 PM, but is closed from 11:00 AM to 12:10 PM for a lunch break, and closes for three additional 14-minute breaks during the day. How many dollars of ice cream does the shop sell in a day?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

3C. On the whiteboard is the expression

$$1 + 2 + 3 + \cdots + 9.$$

A mischievous magician starts at the number m (for some m between 2 and 9 inclusive) and erases everything from $+m$ to the end, leaving $1 + \cdots + (m - 1)$ on the whiteboard. This evaluates to one-third of the value of the original sum. What is m?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

4C. Compute 20.25×2025.

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

4C. Compute 20.25×2025.

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

5C. Samuel leaves his house at 5:00 PM and drives at a constant speed of 45 mph. His sister leaves the house an hour later and drives out at a constant speed on the same road and passes Samuel at 7:30 PM. How fast was his sister driving?

DO NOT MARK

Attempt #1 Attempt #2 Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK DO NOT MARK DO NOT MARK

SM3

Team ID

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DO NOT MARK

Attempt #1 Attempt #2 Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK DO NOT MARK DO NOT MARK

SM3

Team ID

1D. Let the operation $x \ddagger y$ denote $x^2 + xy + y^2$. What is the value of $(2 \ddagger 3) \ddagger 4$?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

2D. Gabe wants to buy a $40 shirt at store A and $50 pants at store B (before discount). Today, store A has a 30% discount on all items, and store B has a 40% discount on all items. How much does Gabe save from these discounts?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

3D. Reina listens to 6 songs that are all 3 minutes and 15 seconds. Before each song, a 20-second ad plays. How many seconds does it take for her to listen to all 6 songs if she does not listen to an ad before the first song?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

3D. Reina listens to 6 songs that are all 3 minutes and 15 seconds. Before each song, a 20-second ad plays. How many seconds does it take for her to listen to all 6 songs if she does not listen to an ad before the first song?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

4D. A vine has 700 leaves in total. The first 3 leaves are on the left and the next 4 are on the right; this pattern of 7 continues 99 more times. A ladybug starts on the first leaf and jumps on every 4^{th} leaf (so the 1^{st}, 5^{th}, 9^{th}, dots.h leaves). The ladybug jumps off the vine after traversing through the 700 leaves. How many leaves on the right side of the vine did the ladybug jump on?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

5D. Emma loves animals and has adopted 15 pets consisting of furry dogs, furry cats, and feathered ducks. With all 15 pets in the room, Emma sees 18 furry ears on her pets and counts that she has 8 pets that are not dogs. How many cats does Emma have?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

1E. Sally is moving and has two boxes of clothing. She knows that one of them has 10 shirts, 5 pairs of pants, and 7 jackets, while the other box has 7 shirts, 6 pairs of pants, and 9 jackets. Unfortunately, she has mixed up the boxes and needs to figure out which box has 9 jackets. She picks a box at random and starts randomly pulling out items of clothing one at a time. In the worst-case scenario, how many clothing items does she have to pull out before knowing if her current box is correct?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

2E. We have a die in the shape of a regular square pyramid and we label each one of its faces with the number of edges on the corresponding face. What is the sum of all the numbers on the dice?

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

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DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

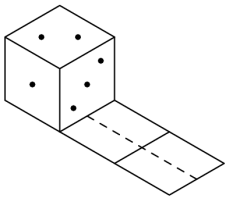
ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

3E. On a dice, the number of dots on opposite faces sum to 7. The dice shown is rolled over its edge on the dotted path along the two squares shown. How many dots are on the top face once this dice completes its path?



DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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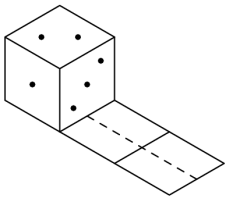

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

4E. Anthony is running around a square track with side length 100 meters. He starts at a corner and runs a total of 5050 meters on the track. In total, how many turns did he take if he made his first turn after running 100 meters?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

5E. There are 5 students lining up to leave a classroom, and they can each choose between 3 different exits. They leave in order, and each person makes sure to not leave through the same exit as the person in front of them. How many different ways can the 5 students exit?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

1F. In a large auditorium, the first row of seats contains 15 chairs, and each subsequent row has one more chair than the previous row. Marcus notices that there are exactly 11 people sitting in each row, while Alice counts a total of 130 empty seats. How many rows of seating are there?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

1F. In a large auditorium, the first row of seats contains 15 chairs, and each subsequent row has one more chair than the previous row. Marcus notices that there are exactly 11 people sitting in each row, while Alice counts a total of 130 empty seats. How many rows of seating are there?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

2F. Erin is decorating her wall and decides to put a large 15 by 35 inch rectangular picture frame in the center of her 75 by 115 inch rectangular wall. She orients it so that the shorter side of the picture frame is parallel to the shorter side of her wall. Compute the distance, in inches, between the top left corner of the frame and the top left corner of the wall.

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

3F. In a pepperoni pizza eating competition, Jackson eats a total of 20 slices of pizza. It takes him twice as long to eat each of his last ten slices as each of his first ten. If it takes him a total of 18 minutes to eat all 20 slices, how long, in seconds, did it take him to eat his first slice of pizza?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

4F. Cynthia and Audrey both have suitcases that are 60 meters away. They race to grab their suitcases and then back to the start carrying their suitcases. There is a moving walkway that moves at a constant speed of 4 meters per second that slows Audrey down when she runs toward the suitcase and speeds her up when she runs back. Cynthia usually runs at 10 meters per second, and Audrey usually runs at 8 meters per second; however, their suitcases slow them down by 4 meters per second when they run the 60 meters back. If only Audrey uses the moving walkway, how many seconds in advance does Cynthia get back to their original location?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

5F. The lines given by $y = 3$, $y = \frac{3}{4}x + 6$, $y = -x + 6$, and $y = 0$ define a trapezoid in the Cartesian plane. Find the area of this trapezoid.

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

1G. What is $(997975 + 2025)(997975 - 2025)$?

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

1G. What is $(997975 + 2025)(997975 - 2025)$?

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

2G. The arithmetic mean of $2, 7, 3, 8$ and n is 6. What is the value of n?

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

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DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

3G. There is an unique integer n such that $(n-2)^4 \cdot (n-3) \cdot (n-5)^3 \cdot (n-7) \cdot (n-11) = 462000$. What is n?

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

3G. There is an unique integer n such that $(n-2)^4 \cdot (n-3) \cdot (n-5)^3 \cdot (n-7) \cdot (n-11) = 462000$. What is n?

DO NOT MARK

Attempt #1 | Attempt #2 | Attempt #3

ANSWER: _____ _____ _____

DO NOT MARK | DO NOT MARK | DO NOT MARK

SM3

Team ID

4G. Professor Y is grading his students after a grueling test. After the first score turns out to be a disappointing 67, he discovers that the class average dropped by exactly 1 point after each additional test he graded. Given that each student scores between 0 and 100, inclusive, what is the maximum number of students in Professor Y's class?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

5G. The number of distinct ways to arrange the letters of the name `STAFFORDMIDSCHOL` is equivalent to the number of ways to arrange a line of middle schoolers boarding the school bus to attend Stafford Middle School. How many middle schoolers are waiting in line?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

5G. The number of distinct ways to arrange the letters of the name `STAFFORDMIDSCHOL` is equivalent to the number of ways to arrange a line of middle schoolers boarding the school bus to attend Stafford Middle School. How many middle schoolers are waiting in line?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

1H. A particular theater has a seating capacity of 600 people. A performance in the theater was not filled to seating capacity, and the total receipts for the performance were $330. Admission prices cost $0.75 for adults and $0.25 for children. What is the minimum possible number of adults in the theater?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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ANSWER:			
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SM3

Team ID

2H. Lora's team won their most recent basketball game, and Lora scored 64 points. Each shot in the game is worth either 2 or 3 points. All she remembers about the game is that the number of 2-pointers and 3-pointers she scored were both prime numbers. How many 3-pointers did she score?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

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ANSWER:			
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SM3

Team ID

3H. A carpenter is sawing a 100-inch wooden plank into two pieces. His client wants two wooden planks: both should be longer than 30 inches, and one must be at least 5 inches longer than the other. However, the carpenter's hand slips and he cuts the 100-inch plank at a random location. Unfortunately, the shorter half splinters during the cut and cannot be used. What is the probability that the carpenter can still fulfill his clients request with the longer half?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
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SM3

Team ID

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SM3

Team ID

4H. Viktor writes down a four-digit positive integer on the blackboard. He adds 9 to his number and then divides it by 10 to get a new number. He erases his old number and replaces it with his new number on the blackboard. He repeats this process until he gets a fraction. Given that the last integer that he gets is one-digit, how many possible numbers could he have started with?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

4H. Viktor writes down a four-digit positive integer on the blackboard. He adds 9 to his number and then divides it by 10 to get a new number. He erases his old number and replaces it with his new number on the blackboard. He repeats this process until he gets a fraction. Given that the last integer that he gets is one-digit, how many possible numbers could he have started with?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

5H. Chloe bakes a tall cylindrical cake whose height is six times as large as the radius. Unfortunately, she realizes the cake is not structurally sound, and cuts the cake horizontally into two cylinders, the larger piece having triple the surface area of the smaller piece. She further horizontally cuts the larger piece into n identical pieces that have the same height as the original smaller piece. What is n?

DO NOT MARK

	Attempt #1	Attempt #2	Attempt #3
ANSWER:			
	DO NOT MARK	DO NOT MARK	DO NOT MARK

SM3

Team ID

5H. Chloe bakes a tall cylindrical cake whose height is six times as large as the radius. Unfortunately, she realizes the cake is not structurally sound, and cuts the cake horizontally into two cylinders, the larger piece having triple the surface area of the smaller piece. She further horizontally cuts the larger piece into n identical pieces that have the same height as the original smaller piece. What is n?

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