

Individual Test

The individual test contains 30 questions to be done in 30 minutes. The first 20 questions are worth 2 points each and the last 10 are worth 3 points each. Any area of math may be covered on this test. All non-integers answers must be recorded as improper fractions and in terms of π where appropriate, unless the question specifically asks for a different form. Please record your answers in the boxes of the column labeled Answers. Do not write anything in the column labeled Score. Be sure to record name, team #, and school on the test form. When your proctor says to, remove this cover sheet and begin working.

Name: _____ Team #: _____
 School: _____

Individual Test	Answers	Score
1. Evaluate $5 \times 4 \times 3 \times 2 \times 1$	120	2 2
2. What is $3 + 4(2 + 2)^2$	67	2 2
3. Evaluate $357 + 753$	1110	2 2
4. Stephanie and Eden are best friends and live 40 miles apart from each other. How many minutes will it take Eden to get to Stephanie's house if she travels 50 miles per hour?	48 [min]	2 2
5. If Kirsten jumps rope 12 times in 15 seconds, how many times can she jump rope in 8 minutes?	384	2 2
6. 14 people went to the store. Each boy bought 5 pairs of socks and each girl bought 3 pairs of socks. If a total of 48 pairs of socks were bought, how many girls went to the store?	11	2 2
7. Kirsten and James are playing cards. Kirsten randomly picks a card and if it is a red card or a queen then she wins? What is the probability that Kirsten wins?	$\frac{7}{13}$	2 2
8. Solve for x: $5x + 9 = 3x - 2$	$-\frac{11}{2}$	2 2
9. Yes or No: Is $x + 3$ ever greater than $x + 4$?	No	2 2
10. Lance is climbing a tall mountain along a 135 km path. Every Monday, Wednesday, and Thursday he climbs 9 km, but every Friday he slides down 6 km. He does not move on other days. If he starts climbing on a Monday, how many days (including stopped days) will it take him to reach the top?	43	2 2
11. Find $37 \times 14 + 37 \times 19$	1221	2 2
12. I have 6 blue socks, 4 red socks, 8 green socks, 6 tan socks, and 2 black socks. What is the probability I will not pick a red sock if I pick one sock at random?	$\frac{11}{13}$	2 2
13. In Mary's school there is a teacher for every 24 students and among the students; there are twice as many girls as boys. If the school has 200 people, how many girls students are there?	128	2 2
14. The coins used in the land of Oompa are the dom, the fom, the lom and the rom. There are 4 doms to a fom, 2 foms to a lom, and 5 loms make 2 roms. How many doms are in 2 foms and 4 roms?	88	2 2
15. A rectangle has area 48. A square formed using the rectangle's larger side as one of it's sides has area 256. What is the perimeter of the rectangle?	38	2 2
16. Find x if $3(4x) = 2(2x + 12)$	3	2 2
17. Jonathan is trying to become a Pokémon master. If he has to catch 151 Pokémon and he catches 3 each day, what day will he become a Pokémon master, assuming he starts on a Tuesday?	Wednesday	2 2
18. Eleven students, numbered 1 through 11, are sitting in a circle. Starting with #1, every 5 th student still in the game is eliminated, i.e. #5, then #10, then #4 continuing around the circle. What number student is the last one left in the game?	#8	2 2

Name: _____

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School: _____

19. Clarissa has 4 math assignments, 3 history assignments, and 13 Spanish assignments. If it takes her 6 minutes per math assignment, half of that time for each Spanish assignment, and four times the time she takes for a math assignment to complete a history assignment, and she starts her homework at 2 o'clock in the afternoon, what time will she be finished with all of her homework?	4:15 [PM]	2 2
20. Find x if: $\frac{x-1}{x+1} = \frac{4}{7}$	$\frac{11}{3}$	2 2
21. A wood turtle, a painted turtle, and a snapping turtle are in a pond. If a hand is placed into the pond, the turtles may bite it. The wood turtle and painted turtle will only bite the hand if they are hungry, the probabilities of which are $\frac{3}{5}$ and $\frac{5}{7}$, respectively. The snapping turtle will bite the hand unless asleep, the probability of which is $\frac{1}{9}$. If a hand is placed into the water, what is the probability of it being bitten by at least one turtle?	$\frac{311}{315}$	3 3
22. The food court sells popcorn, pizza and chips, which cost 50, 75, and 60 cents, respectively. Two-thirds of an item's cost is profit. If they sell 9 popcorn bags, 20 slices of pizza and 6 bags of chips how much profit will they make (in dollars)?	\$15.40	3 3
23. What is the largest factor of 10,000 that is NOT a multiple of 10?	625	3 3
24. Every time Pali goes to the doctor she gets a treat, if she breaks her leg she gets a hot dog, if she gets a shot she gets ice cream, and if she is sick she gets hot chocolate. Pali breaks her leg 3 times, gets 6 shots and is sick twice. If a hot dog costs \$2.50, an ice cream costs \$1.25 and her mom spends \$20.00 total how much does hot chocolate cost?	[\$]2.50	3 3
25. A sapphire is worth five times as much as a topaz. A diamond is worth twice as much as a ruby. An emerald is worth twice as much as a topaz and half as much as a ruby. Three opals are worth as much as two amethysts. A diamond worth three times as much as an amethyst. A topaz is worth half the cost of an opal. Of the 7 gems mentioned, which has the median price?	Amethyst	3 3
26. $x@y$ is defined as $x + \frac{y-x}{y}$. What is $(2@3) + (3@5)$?	$\frac{86}{15}$	3 3
27. In the first 20 games of the baseball season, the Mariners only won 30% of their games, how many consecutive games must they now win to bring their winning percentage to at least 60%?	15	3 3
28. Unicorns live by themselves and need a rectangular area exactly 20 x 30 meters to live. If I have a plot of land measuring 120 x 50 meters, how many unicorns can live within it?	10	3 3
29. Find the area of the triangle whose vertices are the points with coordinates (0,0), (4,1) and (1,4).	$\frac{15}{2}$	3 3
30. How many distinct ways can I rearrange the letters in the word "SEATTLE" if the T's have to remain together?	360	3 3
Total Score:	____ + ____	

Name: _____

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School: _____

Individual Test	Answers	Score
1. Evaluate $5 \times 4 \times 3 \times 2 \times 1$		2 2
2. What is $3 + 4(2 + 2)^2$		2 2
3. Evaluate $357 + 753$		2 2
4. Stephanie and Eden are best friends and live 40 miles apart from each other. How many minutes will it take Eden to get to Stephanie's house if she travels 50 miles per hour?		2 2
5. If Kirsten jumps rope 12 times in 15 seconds, how many times can she jump rope in 8 minutes?		2 2
6. 14 people went to the store. Each boy bought 5 pairs of socks and each girl bought 3 pairs of socks. If a total of 48 pairs of socks were bought, how many girls went to the store?		2 2
7. Kirsten and James are playing cards. Kirsten randomly picks a card and if it is a red card or a queen then she wins? What is the probability that Kirsten wins?		2 2
8. Solve for x: $5x + 9 = 3x - 2$		2 2
9. Yes or No: Is $x + 3$ ever greater than $x + 4$?		2 2
10. Lance is climbing a tall mountain along a 135 km path. Every Monday, Wednesday, and Thursday he climbs 9 km, but every Friday he slides down 6 km. He does not move on other days. If he starts climbing on a Monday, how many days (including stopped days) will it take him to reach the top?		2 2
11. Find $37 \times 14 + 37 \times 19$		2 2
12. I have 6 blue socks, 4 red socks, 8 green socks, 6 tan socks, and 2 black socks. What is the probability I will not pick a red sock if I pick one sock at random?		2 2
13. In Mary's school there is a teacher for every 24 students and among the students; there are twice as many girls as boys. If the school has 200 people, how many girls students are there?		2 2
14. The coins used in the land of Oompa are the dom, the fom, the lom and the rom. There are 4 doms to a fom, 2 foms to a lom, and 5 loms make 2 roms. How many doms are in 2 foms and 4 roms?		2 2
15. A rectangle has area 48. A square formed using the rectangle's larger side as one of it's sides has area 256. What is the perimeter of the rectangle?		2 2
16. Find x if $3(4x) = 2(2x + 12)$		2 2
17. Jonathan is trying to become a Pokémon master. If he has to catch 151 Pokémon and he catches 3 each day, what day will he become a Pokémon master, assuming he starts on a Tuesday?		2 2
18. Eleven students, numbered 1 through 11, are sitting in a circle. Starting with #1, every 5 th student still in the game is eliminated, i.e. #5, then #10, then #4 continuing around the circle. What number student is the last one left in the game?		2 2

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19. Clarissa has 4 math assignments, 3 history assignments, and 13 Spanish assignments. If it takes her 6 minutes per math assignment, half of that time for each Spanish assignment, and four times the time she takes for a math assignment to complete a history assignment, and she starts her homework at 2 o'clock in the afternoon, what time will she be finished with all of her homework?		2 2
20. Find x if: $\frac{x-1}{x+1} = \frac{4}{7}$		2 2
21. A wood turtle, a painted turtle, and a snapping turtle are in a pond. If a hand is placed into the pond, the turtles may bite it. The wood turtle and painted turtle will only bite the hand if they are hungry, the probabilities of which are $\frac{3}{5}$ and $\frac{5}{7}$, respectively. The snapping turtle will bite the hand unless asleep, the probability of which is $\frac{1}{9}$. If a hand is placed into the water, what is the probability of it being bitten by at least one turtle?		3 3
22. The food court sells popcorn, pizza and chips, which cost 50, 75, and 60 cents, respectively. Two-thirds of an item's cost is profit. If they sell 9 popcorn bags, 20 slices of pizza and 6 bags of chips how much profit will they make (in dollars)?		3 3
23. What is the largest factor of 10,000 that is NOT a multiple of 10?		3 3
24. Every time Pali goes to the doctor she gets a treat, if she breaks her leg she gets a hot dog, if she gets a shot she gets ice cream, and if she is sick she gets hot chocolate. Pali breaks her leg 3 times, gets 6 shots and is sick twice. If a hot dog costs \$2.50, an ice cream costs \$1.25 and her mom spends \$20.00 total how much does hot chocolate cost?		3 3
25. A sapphire is worth five times as much as a topaz. A diamond is worth twice as much as a ruby. An emerald is worth twice as much as a topaz and half as much as a ruby. Three opals are worth as much as two amethysts. A diamond worth three times as much as an amethyst. A topaz is worth half the cost of an opal. Of the 7 gems mentioned, which has the median price?		3 3
26. $x@y$ is defined as $x + \frac{y-x}{y}$. What is $(2@3) + (3@5)$?		3 3
27. In the first 20 games of the baseball season, the Mariners only won 30% of their games, how many consecutive games must they now win to bring their winning percentage to at least 60%?		3 3
28. Unicorns live by themselves and need a rectangular area exactly 20 x 30 meters to live. If I have a plot of land measuring 120 x 50 meters, how many unicorns can live within it?		3 3
29. Find the area of the triangle whose vertices are the points with coordinates (0,0), (4,1) and (1,4).		3 3
30. How many distinct ways can I rearrange the letters in the word "SEATTLE" if the T's have to remain together?		3 3
Total Score: ____ + ____		

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Mental Math Test

The mental math test contains 20 questions to be done in 10 minutes. All problems must be done mentally. Only answers may be recorded on the test. If work is present, or an answer is changed, even if correct the problem will be marked wrong. Scratch paper will not be provided. All questions will be worth 1 point. Any area of math may be covered on this test. All non-integer answers must be recorded as improper fractions and in terms of π where appropriate, unless the question specifically asks for a different form. Please record your answers in the boxes of the column labeled Answers. Do not write anything in the column labeled Score. Be sure to record name, team #, and school on the test form. When your proctor says to, remove this cover sheet and begin working.

Name: _____ Team #: _____
 School: _____

Mental Math Test	Answers	Score
1. What is the volume of a cube with side length 7 feet?	343 [ft ³]	1 1
2. Evaluate $739 - 427$	312	1 1
3. Convert the infinitely repeating decimal $0.\overline{30}$ to a reduced fraction.	$\frac{10}{33}$	1 1
4. What is the second largest 2-digit prime number?	89	1 1
5. How many sides are in a nonagon?	9	1 1
6. How many inches are in 13 ft?	156 [in]	1 1
7. If Desi has 17 apples, Sydney had 26 mangos, Kirsten has 31 kiwis, and Simran has 11 oranges, how many pieces of fruit does the group have in total?	85	1 1
8. How many seconds are there in one hour?	3600	1 1
9. Express the sum $4\frac{5}{6} + 5\frac{5}{12}$ as a mixed number.	$10\frac{1}{4}$	1 1
10. Which is smaller: $\frac{19}{32}$ or $\frac{11}{19}$?	$\frac{11}{19}$	1 1
11. What is the perimeter of a square with area 9?	12	1 1
12. What is the area of a triangle with base 13 and height 17?	$\frac{221}{2}$	1 1
13. What is the greatest common divisor of 28 and 42?	14	1 1
14. If a strawberry costs \$0.18, how much do 9 strawberries cost?	\$1.62	1 1
15. Evaluate the quotient $3\frac{3}{4} \div 1\frac{2}{3}$	$\frac{9}{4}$	1 1
16. Evaluate $45^2 - 14$	2011	1 1
17. Simran is not having much luck lately. His car will only start 80% of the time, independently his motorcycle will only start 60% of the time. What is the probability that Simran's motorcycle won't start but his car does start today (express as a percent)?	32%	1 1
18. If the Mount Rainier Math Team puts out 104 rows with each row containing 96 chairs, how many chairs were put out?	9984	1 1
19. How many positive even integers are greater than 1102, but less than 2011?	454	1 1
20. Kirsten has 5 shirts, 3 pairs of jeans, and 2 pairs of boots. She wants to pack two shirts, one pair of jeans and a pair boots. In how many ways can this be done?	60	1 1
Total Score:		

Name: _____ Team #: _____
 School: _____

Mental Math Test	Answers	Score
1. What is the volume of a cube with side length 7 feet?		1 1
2. Evaluate $739 - 427$		1 1
3. Convert the infinitely repeating decimal $0.\overline{30}$ to a reduced fraction.		1 1
4. What is the second largest 2-digit prime number?		1 1
5. How many sides are in a nonagon?		1 1
6. How many inches are in 13 ft?		1 1
7. If Desi has 17 apples, Sydney had 26 mangos, Kirsten has 31 kiwis, and Simran has 11 oranges, how many pieces of fruit does the group have in total?		1 1
8. How many seconds are there in one hour?		1 1
9. Express the sum $4\frac{5}{6} + 5\frac{5}{12}$ as a mixed number.		1 1
10. Which is smaller: $\frac{19}{32}$ or $\frac{11}{19}$?		1 1
11. What is the perimeter of a square with area 9?		1 1
12. What is the area of a triangle with base 13 and height 17?		1 1
13. What is the greatest common divisor of 28 and 42?		1 1
14. If a strawberry costs \$0.18, how much do 9 strawberries cost?		1 1
15. Evaluate the quotient $3\frac{3}{4} \div 1\frac{2}{3}$		1 1
16. Evaluate $45^2 - 14$		1 1
17. Simran is not having much luck lately. His car will only start 80% of the time, independently his motorcycle will only start 60% of the time. What is the probability that Simran's motorcycle won't start but his car does start today (express as a percent)?		1 1
18. If the Mount Rainier Math Team puts out 104 rows with each row containing 96 chairs, how many chairs were put out?		1 1
19. How many positive even integers are greater than 1102, but less than 2011?		1 1
20. Kirsten has 5 shirts, 3 pairs of jeans, and 2 pairs of boots. She wants to pack two shirts, one pair of jeans and a pair boots. In how many ways can this be done?		1 1
Total Score:		

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Challenge³ Test

The challenge³ test contains 20 questions to be done in 24 minutes. Each team will receive three tests, which will be identical except for round number. During the 24 minute period, three rounds will occur, respectively 6, 8, and 10 minutes long. One answer sheet will be turned in at the end of each round. It is strongly recommended that you copy any answers you wish to keep from answer sheet to answer sheet so as to avoid turning in your only copy of an answer. All questions will be worth 1 point. Any area of math may be covered on this test. All answers must be recorded as improper fractions and in terms of π where appropriate, unless the question specifically asks for a different form. Please record your answers in the boxes of the column labeled Answers. Do not write anything in the column labeled Score. Be sure to record name, team #, and school on each test form. When your proctor says to, remove this cover sheet and begin working.

Name: _____ Team #: _____
 School: _____

Challenge Test	Answers	Score
1. There are 2 squares, one with a side length twice the other's side length. What is the ratio of the larger square's area to the smaller square's area?	4:1 Or 4	1 1
2. A pentagon has 4 angles that sum to 400° , what is the measure in degrees of the last angle?	140°	1 1
3. Express $\frac{19}{25}$ as a decimal.	0.76	1 1
4. Express $0.\overline{654}$ as a fraction.	$\frac{218}{333}$	1 1
5. Evaluate $2 + 6 + 9 \times 9 - 8 + 16$	97	1 1
6. Twice one number is half the second number and quadruple the sum of the first number and the third number. What is the second number divided by the third number?	-8	1 1
7. Vladimir runs at 10MPH. If The Cove is 7 miles away, how many minutes will it take him to get there?	42	1 1
8. A ferry transports cars from an island to shore. Initially there is one car on shore. The ferry arrives at the shore every 3 hours with 5 cars. How many cars will be on shore after 20 hours?	31	1 1
9. Express 3.56 as a mixed number.	$3\frac{14}{25}$	1 1
10. For how many integers (don't forget about the negatives) is $\frac{k+8}{k+1}$ an integer?	4	1 1
11. An XBOX has an original price of \$300. There is a 25% off sale for XBOX's at the Electron store. At the Positron store, however, XBOX's were given a 10% discount off the original price and were then put under an additional 15% discount. What is the difference in XBOX prices between the stores?	\$4.50	1 1
12. Evaluate $\frac{1}{2} + \frac{1}{3} + \frac{1}{5} + \frac{1}{7}$	$\frac{247}{210}$	1 1
13. It takes Jasmine 66 minutes to type a 900 word essay. At this rate, how many minutes will it take her to type a 2100 word essay?	154	1 1
14. Johnny can fix an engine in 3 hours, and his brother can fix an engine in 5 hours. If they work together, how many minutes will it take to fix 2 engines?	225	1 1
15. A substance T is added to starch. When mixed with starch, substance T will break down into water and oxygen in a 3:1 ratio. The final mixture has 66% water. What is the percentage of oxygen in this mixture, expressed as a decimal?	22%	1 1
16. Evaluate $4\frac{7}{16} + 5\frac{7}{12}$	$\frac{481}{48}$	1 1
17. A book is tossed by a careless owner onto a flat surface, where it opens to a random page. If the product of the page numbers on the left and right is 156, what is the larger of the numbers?	13	1 1
18. What is the unit's digit of 3^{18} ?	9	1 1
19. What is the sum of the first 100 positive odd numbers?	10000	1 1
20. How many 3-digit numbers have the digits in increasing order? For example, include 123 but not 163 or even 144.	84	1 1
Total Score:		

Name: _____ Team #: _____

School: _____

Challenge Test	Answers	Score
1. There are 2 squares, one with a side length twice the other's side length. What is the ratio of the larger square's area to the smaller square's area?		1 1
2. A pentagon has 4 angles that sum to 400° , what is the measure in degrees of the last angle?		1 1
3. Express $\frac{19}{25}$ as a decimal.		1 1
4. Express $0.\overline{654}$ as a fraction.		1 1
5. Evaluate $2 + 6 + 9 \times 9 - 8 + 16$		1 1
6. Twice one number is half the second number and quadruple the sum of the first number and the third number. What is the second number divided by the third number?		1 1
7. Vladimir runs at 10MPH. If The Cove is 7 miles away, how many minutes will it take him to get there?		1 1
8. A ferry transports cars from an island to shore. Initially there is one car on shore. The ferry arrives at the shore every 3 hours with 5 cars. How many cars will be on shore after 20 hours?		1 1
9. Express 3.56 as a mixed number.		1 1
10. For how many integers (don't forget about the negatives) is $\frac{k+8}{k+1}$ an integer?		1 1
11. An XBOX has an original price of \$300. There is a 25% off sale for XBOX's at the Electron store. At the Positron store, however, XBOX's were given a 10% discount off the original price and were then put under an additional 15% discount. What is the difference in XBOX prices between the stores?		1 1
12. Evaluate $\frac{1}{2} + \frac{1}{3} + \frac{1}{5} + \frac{1}{7}$		1 1
13. It takes Jasmine 66 minutes to type a 900 word essay. At this rate, how many minutes will it take her to type a 2100 word essay?		1 1
14. Johnny can fix an engine in 3 hours, and his brother can fix an engine in 5 hours. If they work together, how many minutes will it take to fix 2 engines?		1 1
15. A substance T is added to starch. When mixed with starch, substance T will break down into water and oxygen in a 3:1 ratio. The final mixture has 66% water. What is the percentage of oxygen in this mixture, expressed as a decimal?		1 1
16. Evaluate $4\frac{7}{16} + 5\frac{7}{12}$		1 1
17. A book is tossed by a careless owner onto a flat surface, where it opens to a random page. If the product of the page numbers on the left and right is 156, what is the larger of the numbers?		1 1
18. What is the unit's digit of 3^{18} ?		1 1
19. What is the sum of the first 100 positive odd numbers?		1 1
20. How many 3-digit numbers have the digits in increasing order? For example, include 123 but not 163 or even 144.		1 1
Total Score:		

Name: _____ Team #: _____
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Relay Test

The relays contain a total 20 questions to be done in 16 minutes. Each team will receive four relay tests, one for each subject. Subjects are: number sense, algebraic sense, geometric sense, and probability/statistics. Each team member will receive one test. At the start of the test, each team member will work on their own test only. After four minutes, team members must pass their test to the next person. During the course of the test, each member will see each test. Teams of three will require that one person start with two tests. All questions will be worth 3 points. All answers must be recorded as improper fractions and in terms of π where appropriate, unless the question specifically asks for a different form. Please record your answers in the boxes of the column labeled Answers. Do not write anything in the column labeled Score. Be sure to record name, team #, and school on each test form. When your proctor says to, remove this cover sheet and begin working.

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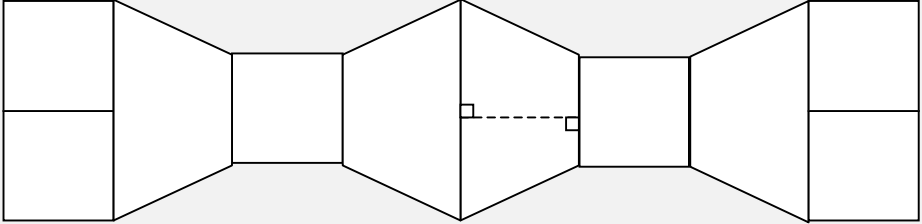
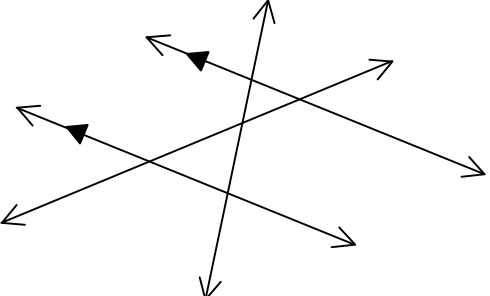
Number Sense	Answers	Score
<p>1. How many positive factors does 208 have?</p>	10	3 3
<p>2. Ben has 16 jackets, 11 pairs of pants, 20 tee-shirts, and 3 belts in his closet. If he picks at random, how many items will he have to pick to guarantee that he gets a complete outfit (one of each item)?</p>	48	3 3
<p>3. What is the smallest integer greater than 100 that is divisible by every positive integer less than or equal to 4, that is 1, 2, 3 and 4?</p>	108	3 3
<p>4. What is the positive difference between the least common multiple and greatest common factor of 42 and 98?</p>	280	3 3
<p>5. James is in charge of sorting a shelf of books of fantasy, historical, and sci-fi by genre. Books must belong in one genre, or any combination of the three. There are 33 fantasy, 46 historical, and 32 sci-fi in James' collection. Sci-fi is his favorite genre; 11 are only sci-fi, 6 are only sci-fi and fantasy, 10 are only sci-fi and historical. He has 5 favorite books which are all the books in all three genres. There are 22 only historical books. If there are 76 books in total, how many are only fantasy and historical but NOT sci-fi?</p>	9	3 3
Total Score:		

Name: _____ Team #: _____

School: _____

Algebra Sense	Answers	Score
<p>1. I have an apple tree that grows 4 apples a day at exactly noon. The tree had 6 apples on Monday night. If I pick all the apples from the tree on the following Sunday at 6:00 PM, how many apples will I have?</p>	30	3 3
<p>2. Kirsten loves shoes. For her birthday all her friends gave her shoes. Merima, Ben, and Jonathon gave a total of 18 shoes. Jonathon gave three times as many as Merima, who gave $\frac{1}{5}$ as many as Ben. How many shoes did Ben give?</p>	10	3 3
<p>3. Marie and Celia are having a race. Marie runs at 15 feet per second and Celia runs at 12 feet per second. The course is 100 yards. How much time, in seconds, should Celia start before Marie if they want to finish the race together?</p>	5 [secs]	3 3
<p>4. For how many positive integers (1, 2, 3, ...), x, is $x - 12 < 8$?</p>	15	3 3
<p>5. I am knitting a sweater for my friend. I started at 6:00 AM. It takes 4 minutes to knit a row and I need to knit 250 rows. What time will I finish assuming I work constantly without stopping?</p>	10:40 [PM]	3 3
Total Score:		

Name: _____ Team #: _____
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Geometry Sense	Answers	Score
<p>1. On the line $3x + 5y = 14$, how many points exist between $(13, -5)$ and $(-2, 4)$, exclusive, that have coordinates that are both integers?</p>	2	3 3
<p>2. At what point do the lines $4x - 2y = 5$ and $3x + y = -3$ intersect?</p>	$(-\frac{1}{10}, -\frac{27}{10})$	3 3
<p>3. The figure below is formed from identical trapezoids and squares. What is the area of the entire figure?</p> 	1080	3 3
<p>4. Find length x:</p> 	14	3 3
<p>5. Ben is walking around. Starting from his house, he walks at a rate of 3mph north for 20 minutes, then turns east and, maintaining his speed, walks for half an hour. At that point, he turns south and slows to a speed of 2mph and proceeds for another half-hour. Then he turns west and walks at a speed of 4mph. Some minutes later, he passes by a friend's house. If that friend's house is half a mile east of Ben's house, how long has Ben been walking in minutes?</p>	95 [minutes]	3 3
Total Score:		

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Probability/Statistics	Answers	Score
<p>1. What is the probability of rolling a fair, 6-sided die and getting a prime number, and then flipping a fair coin and getting heads?</p>	$\frac{1}{4}$	3 3
<p>2. Given the following data set: {2, 4, 3, 6, 9, 3, 4, 8, 13, 12, 5, 4, 15}, which is the greatest: the mean, the median, or the mode?</p>	Mean	3 3
<p>3. Two fair 6-sided dice are rolled and both show even numbers. What is the probability that the sum is 6?</p>	$\frac{2}{9}$	3 3
<p>4. Merima really likes frozen yogurt. In fact, she is trying to go to every frozen yogurt place in Renton. A report finds that out of 6 places, 2 have rotten yogurt. If she has been to half of them so far, what is the probability she has eaten rotten yogurt?</p>	$\frac{4}{5}$	3 3
<p>5. In Bob's class the average on last week's math test was 90. The average of the boy's scores was 86. If there are twice as many girls as boys in the class, what was the average of the girls' scores?</p>	92	3 3
Total Score:		

Name: _____ Team #: _____
 School: _____

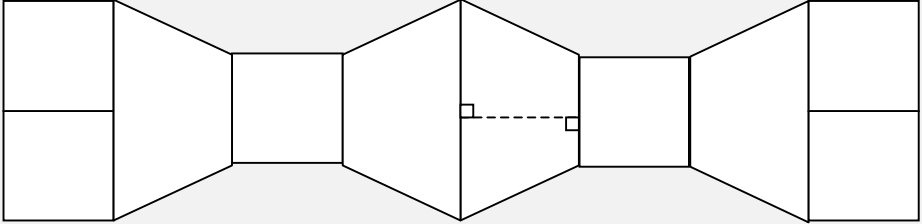
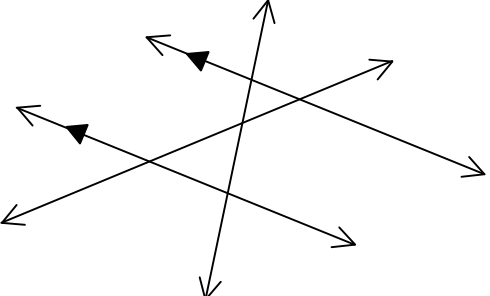
Number Sense	Answers	Score
<p>1. How many positive factors does 208 have?</p>		3 3
<p>2. Ben has 16 jackets, 11 pairs of pants, 20 tee-shirts, and 3 belts in his closet. If he picks at random, how many items will he have to pick to guarantee that he gets a complete outfit (one of each item)?</p>		3 3
<p>3. What is the smallest integer greater than 100 that is divisible by every positive integer less than or equal to 4, that is 1, 2, 3 and 4?</p>		3 3
<p>4. What is the positive difference between the least common multiple and greatest common factor of 42 and 98?</p>		3 3
<p>5. James is in charge of sorting a shelf of books of fantasy, historical, and sci-fi by genre. Books must belong in one genre, or any combination of the three. There are 33 fantasy, 46 historical, and 32 sci-fi in James' collection. Sci-fi is his favorite genre; 11 are only sci-fi, 6 are only sci-fi and fantasy, 10 are only sci-fi and historical. He has 5 favorite books which are all the books in all three genres. There are 22 only historical books. If there are 76 books in total, how many are only fantasy and historical but NOT sci-fi?</p>		3 3
Total Score:		

Name: _____ Team #: _____

School: _____

Algebra Sense	Answers	Score
<p>1. I have an apple tree that grows 4 apples a day at exactly noon. The tree had 6 apples on Monday night. If I pick all the apples from the tree on the following Sunday at 6:00 PM, how many apples will I have?</p>		3 3
<p>2. Kirsten loves shoes. For her birthday all her friends gave her shoes. Merima, Ben, and Jonathon gave a total of 18 shoes. Jonathon gave three times as many as Merima, who gave $\frac{1}{5}$ as many as Ben. How many shoes did Ben give?</p>		3 3
<p>3. Marie and Celia are having a race. Marie runs at 15 feet per second and Celia runs at 12 feet per second. The course is 100 yards. How much time, in seconds, should Celia start before Marie if they want to finish the race together?</p>		3 3
<p>4. For how many positive integers (1, 2, 3, ...), x, is $x - 12 < 8$?</p>		3 3
<p>5. I am knitting a sweater for my friend. I started at 6:00 AM. It takes 4 minutes to knit a row and I need to knit 250 rows. What time will I finish assuming I work constantly without stopping?</p>		3 3
Total Score:		

Name: _____ Team #: _____
School: _____

Geometry Sense	Answers	Score
<p>1. On the line $3x + 5y = 14$, how many points exist between $(13, -5)$ and $(-2, 4)$, exclusive, that have coordinates that are both integers?</p>		3 3
<p>2. At what point do the lines $4x - 2y = 5$ and $3x + y = -3$ intersect?</p>		3 3
<p>3. The figure below is formed from identical trapezoids and squares. What is the area of the entire figure?</p> 		3 3
<p>4. Find length x:</p> 		3 3
<p>5. Ben is walking around. Starting from his house, he walks at a rate of 3mph north for 20 minutes, then turns east and, maintaining his speed, walks for half an hour. At that point, he turns south and slows to a speed of 2mph and proceeds for another half-hour. Then he turns west and walks at a speed of 4mph. Some minutes later, he passes by a friend's house. If that friend's house is half a mile east of Ben's house, how long has Ben been walking in minutes?</p>		3 3
Total Score:		

Name: _____ Team #: _____
 School: _____

Probability/Statistics	Answers	Score
<p>1. What is the probability of rolling a fair, 6-sided die and getting a prime number, and then flipping a fair coin and getting heads?</p>		3 3
<p>2. Given the following data set: {2, 4, 3, 6, 9, 3, 4, 8, 13, 12, 5, 4, 15}, which is the greatest: the mean, the median, or the mode?</p>		3 3
<p>3. Two fair 6-sided dice are rolled and both show even numbers. What is the probability that the sum is 6?</p>		3 3
<p>4. Merima really likes frozen yogurt. In fact, she is trying to go to every frozen yogurt place in Renton. A report finds that out of 6 places, 2 have rotten yogurt. If she has been to half of them so far, what is the probability she has eaten rotten yogurt?</p>		3 3
<p>5. In Bob's class the average on last week's math test was 90. The average of the boy's scores was 86. If there are twice as many girls as boys in the class, what was the average of the girls' scores?</p>		3 3
Total Score:		

Name: _____ Team #: _____
School: _____

Puzzle Test

The puzzle test contains 5 questions to be done in 15 minutes. During the course of the test, a team may have answers checked up to four times. If an answer is correct, the proctor will circle the corresponding number in the score column. If an answer is incorrect, it will be marked with an x. Answers are worth more points with fewer checks. Incorrect answers may be modified and resubmitted, correct answers need not be. Any area of math may be covered on this test. All answers must be recorded as improper fractions and in terms of π where appropriate, unless the question specifically asks for a different form. Please record your answers in the boxes of the column labeled Answers. Do not write anything in the column labeled Score. Be sure to record name, team #, and school on the test form. When your proctor says to, remove this cover sheet and begin working.

Name: _____

Team #: _____

School: _____

Puzzle Test	Check	Answers	Score
1. There are 25 bags on a shelf, as well as a large supply of marbles. A small child decides to put the marbles in the bags, and in such a way that no two bags have the same number of marbles inside themselves. Each bag has at least one marble. What is the smallest number of marbles required to do this?	1	25	4
	2		3
	3		2
	4		1
2. On a test of 20 questions, each correct answer is worth 5 points, each incorrect answer is worth -1 points, and each blank is worth 2 points. Johnny received a score of 43. How many more correct answers than wrong answers did Johnny get?	1	1	4
	2		3
	3		2
	4		1
3. How many 3-digit positive whole numbers do not contain the digit zero?	1	729	4
	2		3
	3		2
	4		1
4. There are 6 different color balls (one each) in a box: indigo, orange, green, violet, white, and black. I take balls out of the box one at a time without looking until I take the orange ball out. I do not put balls back. How many different ways can I get to the orange ball if the order of the balls taken out <u>does</u> matter?	1	326	4
	2		3
	3		2
	4		1
5. Inside a rather odd vending machine there are 60 stacks of bags of chips. The stacks contain different numbers of bags, and each number between 1 and 60 inclusive is represented. This vending machine allows a user to buy any number of bags from any number of stacks in one purchase, but a user cannot buy more bags from a stack than that stack has and he must buy the same number from each chosen stack. For example, a user could buy 43 bags from each group that contains between 47 and 58 bags, or one bag from every stack. What is the smallest number of purchases needed to remove every bag?	1	6	4
	2		3
	3		2
	4		1
Total Score:			

Name: _____

Team #: _____

School: _____

Puzzle Test	Check	Answers	Score
1. There are 25 bags on a shelf, as well as a large supply of marbles. A small child decides to put the marbles in the bags, and in such a way that no two bags have the same number of marbles inside themselves. Each bag has at least one marble. What is the smallest number of marbles required to do this?	1		4
	2		3
	3		2
	4		1
2. On a test of 20 questions, each correct answer is worth 5 points, each incorrect answer is worth -1 points, and each blank is worth 2 points. Johnny received a score of 43. How many more correct answers than wrong answers did Johnny get?	1		4
	2		3
	3		2
	4		1
3. How many 3-digit positive whole numbers do not contain the digit zero?	1		4
	2		3
	3		2
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	2		3
	3		2
	4		1
5. Inside a rather odd vending machine there are 60 stacks of bags of chips. The stacks contain different numbers of bags, and each number between 1 and 60 inclusive is represented. This vending machine allows a user to buy any number of bags from any number of stacks in one purchase, but a user cannot buy more bags from a stack than that stack has and he must buy the same number from each chosen stack. For example, a user could buy 43 bags from each group that contains between 47 and 58 bags, or one bag from every stack. What is the smallest number of purchases needed to remove every bag?	1		4
	2		3
	3		2
	4		1
Total Score:			