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Number Sense Test Round 11424

Name: _____
Grade: _____
School: _____

place ID sticker inside this box

Correct: _____ (Remember, Correct
and Incorrect must
Incorrect: _____ sum to the last
number attempted)

Scorer's Initials _____ Scorer's Initials _____

- $6 + 12 =$ _____.
- $19 - 9 =$ _____.
- $25 + 18 =$ _____.
- $34 - 16 =$ _____.
- $8 \times 9 =$ _____.
- $42 \div 7 =$ _____.
- What is the the thousands digit of 18436? _____.
- $14 \times 11 =$ _____.
- What is the remainder of $242 \div 7$? ____.
- (estimate) $115 + 456 + 223 =$ _____.
- $4 \times 1 + 3 \times 100 + 9 \times 1000 =$ _____.
- Round 27.65 _____(whole number).
- CXXI = _____(Arabic Numerals).
- $123 + 49 =$ _____.
- $23 \times 12 =$ _____.
- $16 \times 25 =$ _____.
- $189 \div 3 =$ _____.
- $72 \times 15 =$ _____.
- The sum of the even numbers between 1 and 21 is _____.
- (estimate) $1634 \times 14 =$ _____.
- $363 \times 11 =$ _____.
- GCD of 126 and 189 is _____.
- $\frac{3}{5} + \frac{7}{5} =$ _____.
- $353 + 648 =$ _____.
- 7 nickels + 7 pennies = _____(cents).
- $53 \times 57 =$ _____.
- $\frac{3}{4} \times \frac{28}{15} =$ _____(fraction).
- What is the sum of the primes between 1 and 21? _____.
- $19 : 76 = 23 :$ _____.
- (estimate) $1011^2 =$ _____.
- 6 feet = _____ inches.
- $\frac{1}{2} + \frac{3}{4} =$ _____(decimal).
- If $x = 16$, $\sqrt{x} + 2x^2 =$ _____.



Number Sense Test Round 11424

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34. One egg costs 7 cents. A dozen eggs cost _____ cents.
35. $84 \times .25 =$ _____.
36. $40\% =$ _____(fraction).
37. $704 \div$ _____ $= 64$.
38. $26^2 =$ _____.
39. LCM of 21 and 12 = _____.
40. (estimate) $135 \times 7 =$ _____.
41. What is the area of a square with side length 35? _____.
42. What is the average value of the numbers 12, 5, 6 and 9? _____.
43. $.12 \times 18 =$ _____(decimal).
44. $4 + 12 = 8 \times$ _____.
45. If $a = 3$, then $27a + 4 =$ _____.
46. $1 + 3 + 5 + \dots + 23 =$ _____.
47. $\sqrt{81} =$ _____.
48. What is the perimeter of a square with side length 27? _____.
49. $110011_2 =$ _____(base 4) .
50. (estimate) $5\pi^2 =$ _____.
51. $\frac{3}{7} \times \frac{14}{15} =$ _____(fraction).
52. What is the length of the hypotenuse of a triangle with legs 6 and 8? _____.
53. $\sqrt[3]{343} =$ _____.
54. What is the volume of a cube with side length 8? _____.
55. $37.5\% =$ _____(fraction).
56. If a rectangle's perimeter is 64 and its length is 19, then its width is _____.
57. $346_7 =$ _____₁₀.
58. $\sqrt{729} =$ _____.
59. If a circle's radius is 13, its area is ____.
60. (estimate) $7^5 =$ _____.
61. $125^2 - 75^2 =$ _____.
62. If the angles of a triangle are 34° , 75° and x° , $x^\circ =$ _____.
63. $1^2 + 3^2 + 5^2 + 7^2 + 9^2 =$ _____.
64. $7643 + 642 - 726 =$ _____.
65. The area of a triangle with side lengths 5, 5 and 6 is _____.
66. $77^2 =$ _____.
67. 24% of 120 = _____(decimal).
68. The area of a rhombus with diagonals 12 and 13 = _____.
69. If \$1 = 11.2 Rands, \$75 = ____ (Rands).
70. (estimate) $3061^2 =$ _____.
71. $94 \times 107 =$ _____.
72. A regular dodecagon has ____ diagonals.
73. 170 out of 250 = _____%.
74. $2050^2 =$ _____.
75. $845 \div 15 =$ _____(mixed number).
76. $391 \div 23 =$ _____.
77. $2.4 \times 56 =$ _____(decimal).
78. $\frac{3}{8} \times 65 =$ _____(mixed number).
79. Rolls are sold for 72¢ a dozen. How much would 43 rolls cost? _____(¢).
80. (estimate) $364000 \div 47$ _____.

mathleague.org Sprint Round Answer Sheet

If you have been given an ID sticker, please place it in this box with the QR code to the left.	Students, follow us on twitter! http://twitter.com/mathleague email address: _____ (only if you are over 13 and want to be added to our mailing list)	# Correct _____ x (4) = _____ # Incorrect _____ x (-1) = _____ SCORE = _____ DOUBLE CHECK = _____ Students: don't write in this box
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Name:

Grade:

School:

Instructions

This test consists of thirty multiple-choice questions. High school students will be given one hour to respond to as many as possible; elementary students will be given forty minutes. No calculators are allowed on this test. Please mark all responses on this answer sheet by completely filling in the bubble corresponding to your chosen answer. You may make notes and computations on the test pages, but only answers indicated on this answer sheet will be graded for credit. If this test is a qualifying round and you achieve a high enough score, you will be invited to the state championship later in the year; see our website for details.

Scoring

Four points will be awarded for each correct answer, and one point will be deducted for each incorrect answer. No points will be awarded or subtracted for questions left unanswered. Any question with two answers indicated will be counted as incorrect. Please keep in mind that, even though the questions may progress in difficulty toward the end of the test, no bonus points are awarded for solving problems that seem especially difficult.

Quality Control

Please email us any compliments, complaints, or comments about the contest you attended. Our email address is mathleague@mathleague.org. Remember that only contests listed on the website are officially sanctioned mathleague.org meets.

1. (A) (B) (C) (D) (E)

11. (A) (B) (C) (D) (E)

21. (A) (B) (C) (D) (E)

2. (A) (B) (C) (D) (E)

12. (A) (B) (C) (D) (E)

22. (A) (B) (C) (D) (E)

3. (A) (B) (C) (D) (E)

13. (A) (B) (C) (D) (E)

23. (A) (B) (C) (D) (E)

4. (A) (B) (C) (D) (E)

14. (A) (B) (C) (D) (E)

24. (A) (B) (C) (D) (E)

5. (A) (B) (C) (D) (E)

15. (A) (B) (C) (D) (E)

25. (A) (B) (C) (D) (E)

6. (A) (B) (C) (D) (E)

16. (A) (B) (C) (D) (E)

26. (A) (B) (C) (D) (E)

7. (A) (B) (C) (D) (E)

17. (A) (B) (C) (D) (E)

27. (A) (B) (C) (D) (E)

8. (A) (B) (C) (D) (E)

18. (A) (B) (C) (D) (E)

28. (A) (B) (C) (D) (E)

9. (A) (B) (C) (D) (E)

19. (A) (B) (C) (D) (E)

29. (A) (B) (C) (D) (E)

10. (A) (B) (C) (D) (E)

20. (A) (B) (C) (D) (E)

30. (A) (B) (C) (D) (E)



Sprint Test Round 11424

1. Compute the value of $123 + 456$.
A) 789 B) 567 C) 678 D) 579 E) Other
2. What is the mode of the set $\{1,2,3,4,4,4,5,5,6\}$?
A) 9 B) 5 C) 6 D) 3 E) Other
3. Compute $340 \div 17$.
A) 25 B) 15 C) 12 D) 16 E) Other
4. Compute 13^3 .
A) 2197 B) 1897 C) 920 D) 2341 E) Other
5. Jamal has three books. They have 367, 295, and 488 pages, respectively. If Jamal reads 25 pages a week, how many weeks will it take him to finish all three books?
A) 42 B) 46 C) 52 D) 60 E) Other
6. Compute $45 \times 6 + 97 \times 5$.
A) 650 B) 890 C) 675 D) 755 E) Other
7. Jeffrey makes coffee for his 9 colleagues, and one of his colleagues asks for half sugar. Once all the coffee was made, Jeffrey forgot which one had half sugar. What is the probability of him choosing the right mug? Express your answer as a common fraction.
A) $\frac{2}{3}$ B) $\frac{1}{6}$ C) $\frac{1}{3}$ D) $\frac{1}{9}$ E) Other
8. A right triangle has side lengths 6cm, 9cm, and x cm. What is the largest possible value of x ?
A) $4\sqrt{19}$ B) $4\sqrt{7}$ C) $3\sqrt{13}$ D) $3\sqrt{11}$ E) Other
9. Amy drinks 1.5L of milk every weekday, but 1L each weekend day. Every Wednesday, Amy gives her cat a 300mL bowl of milk. How many liters (L) of milk will Amy use over 26 weeks?
A) 292.6 B) 211.3 C) 179.6 D) 254.8 E) Other
10. What is the volume of a cube with a side of 6cm?
A) 216 cm^3 B) 18 cm^3 C) 24 cm^3 D) 194 cm^3 E) Other
11. Last year, Lee bought shares with a value of \$15 each. This year the value of the shares dropped to \$9 each. By what percent did the value of the shares decrease?
A) 45% B) 49% C) 25% D) 35% E) Other
12. A large number of marbles with different numbers on them are placed in a box. Two marbles are chosen WITHOUT replacement (the second marble is chosen from those remaining after the first one is removed). What is the probability that the first marble



Sprint Test Round 11424

- has a higher number than the second one?
- A) Cannot be determined without knowing the numbers on the marbles. B) $\frac{1}{5}$
C) Cannot be determined without knowing how many marbles there are. D) $\frac{1}{10}$
E) Other
13. A large number of marbles with different numbers on them are placed in a box. Two marbles are chosen WITH replacement (the first marble is returned to the box before the second marble is chosen). What is the probability that the first marble has a higher number than the second one?
- A) Cannot be determined without knowing how many marbles there are. B) $\frac{1}{2}$
C) $\frac{1}{10}$ D) Cannot be determined without knowing the numbers on the marbles.
E) Other
14. What is the average of the first 50 positive integers?
- A) 25.5 B) 26 C) 24.5 D) 25 E) Other
15. Three consecutive numbers add up to 75. What is the smallest of these numbers?
- A) 24 B) 25 C) 26 D) 74 E) Other
16. Solve for x : $5x + 7 = 2x + 40$.
- A) 54 B) 33 C) 11 D) 47 E) Other
17. A rectangle with diagonal of length 13cm has width 12cm. What is the length of the rectangle?
- A) 5 B) 25 C) $\sqrt{313}$ D) 12 E) Other
18. How many elements are in the intersection of the set $\{1,4,7,10,\dots,61\}$ and the set $\{1,6,11,16,\dots,61\}$?
- A) 6 B) 3 C) 2 D) 5 E) Other
19. You and your friends order pizza from a delivery service. There are 8 different bases, 18 different toppings and 6 different cheeses. How many different pizzas can you have that consist of one base, one topping, and one cheese?
- A) 812 B) 643 C) 792 D) 839 E) Other
20. Mike has 8 cats. If one of his cats runs away, what percentage his cats have run away?
- A) 12.5 % B) 25% C) 7.5% D) 18% E) Other
21. An equilateral triangle has side length 18. What's the perimeter of the triangle?
- A) 36 B) 18 C) 72 D) 54 E) Other
22. An equilateral triangle has perimeter 18. What's the side length of the triangle?



Sprint Test Round 11424

- A) 72 B) 36 C) 6 D) 54 E) Other
23. If $2x + 3y = 5$ and $4x - y = 7$, what is the value of $6x + 2y$?
A) 4 B) 12 C) 9 D) Cannot be determined E) Other
24. A rectangular prism has a length of 12cm, width of 7cm, and height of 4cm. If its length, width and height are all doubled, what would the surface area of the prism be?
A) 640 B) 160 C) 2560 D) 1280 E) Other
25. What is the value of $(7 \times 143 \times 2014)$?
A) 2018014 B) 2015024 C) 2026014 D) 2016024 E) Other
26. Carolyn pretends to be a kangaroo as she hops up and down a number line with both positive and negative numbers. To multiply $2 \cdot 5$, she starts at 0, faces in the positive direction, and hops forward by 2s 5 times, ending at 10. To find $2 \cdot (-5)$, she starts at 0 facing positive, flips around so she faces in the negative direction, and hops forward by 2s, ending at -10. To find $(-2) \cdot (-5)$, she could start at 0 and then do which of the following?
A) Face negative and hop forward, ending at 10. B) Face positive and hop backward, ending at 10.
C) Face negative and hop backward, ending at 10.
D) Face negative and hop forward, ending at -10. E) Other
27. Refer to the problem above. Akhil tries a decimal number line where clothespins mark numbers in tenths. To make things even more challenging, he chooses a division problem. To find $(-2.1) \div 0.3$, he could do which of the following?
A) Face positive and hop forwards in increments of 0.3, 7 times, until he reaches -2.1.
B) Face negative and hop forward in increments of 0.3, 0.7 times, until he reaches -2.1.
C) Face negative and hop forward in increments of 0.3, 7 times, until he reaches -2.1.
D) Face negative and hop backward in increments of 0.3, 7 times, until he reaches -2.1.
E) Other
28. Being hospitalized with malaria (a disease caused by mosquito bites) costs \$2000. Uanhenga purchases a mosquito net for \$5. Assuming it prevents him from contracting malaria, what is the return on his investment? Percentage return on investment can be calculated as $\frac{\text{profit}}{\text{investment}} \cdot 100$.
A) 0 % B) 39900 % C) 40 % D) 1995 % E) Other
29. Beatrix sets her watch 10 seconds behind the correct time but each day it falls 3 additional seconds behind. How many seconds is her watch currently behind if she set it 36 days ago?
A) 176 B) 181 C) 226 D) 93 E) Other



Sprint Test
Round 11424

30. A picture with a perimeter of 1.2m is framed. One side of the picture is 40cm, and the distance from the edge of the picture to the edge of the frame is 1.5cm on all sides of the picture. What's is the area of the portion of the frame not covered by the picture? Express your answer in cm^2 .
- A) 198 B) 189 C) 203 D) 134 E) Other



Target Test
Round 11424



Name: _____

Grade: _____

School: _____

place ID sticker inside this box

Score: #1 _____ Scorer's Initials _____

Score: #2 _____ Scorer's Initials _____

1. Baby Jacqueline is 9 months old. Convert her age to years. Express your answer in decimal form.

1.

2. In Legoworld, a shopowner charges 10 studs for a pair of rocket boots. The greedy king insists on a 30% tax on all sales. A lego minifigure wants to buy the boots. How many total studs (price plus tax) should he pay?

2.



Target Test
Round 11424



Name: _____

Grade: _____

School: _____

place ID sticker inside this box

Score: #3 _____ Scorer's Initials _____

Score: #4 _____ Scorer's Initials _____

3. Qiao is trying to do her homework. The first hour, her little brother interrupts her 3 times. The next hour, her little brother interrupts her 11 times. The third hour, her little brother interrupts 4 times. How many times per hour is she interrupted on average?

3.

4. A standard six-sided die is rolled onto a table. The product of the visible numbers is 144. What is the number on the bottom side of the die?

4.



Target Test
Round 11424



Name: _____

Grade: _____

School: _____

place ID sticker inside this box

Score: #5 _____ Scorer's Initials _____

Score: #6 _____ Scorer's Initials _____

5. Dexter builds a hollow shelter in Minecraft using blocks. Assume each block is a cube measuring 1 unit · 1 unit · 1 unit. His shelter is 6 blocks wide by 8 blocks long by 4 blocks tall and 1 block thick. What is the exterior surface area of his structure?

5.

6. Refer to the problem above. What is the interior surface area of Dexter's shelter?

6.



Target Test
Round 11424



Name: _____

Grade: _____

School: _____

place ID sticker inside this box

Score: #7 _____ Scorer's Initials _____

Score: #8 _____ Scorer's Initials _____

7. What is the perimeter of a regular decagon with side length 8?

7.

8. A standard six-sided die is rolled twice. What is the probability that the value of the second die is higher than that of the first? Express your answer as a common fraction.

8.



Team Test
Round 11424



School/
Team:

Score: #1 _____ Scorer's Initials _____

Score: #2 _____ Scorer's Initials _____

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1.	2.	3.	4.	5.
6.	7.	8.	9.	10.



Team Test Round 11424



1. Bob loves to eat apples. He ate 3 apples on Monday, 4 apples on Tuesday, and 8 apples on Wednesday. How many total apples did Bob eat those three days?
2. Natsu, Gray, Erza, and Lucy are in a running race. None of them tied each other. Natsu finished after Erza but before Gray. Lucy finished behind Natsu. Who finished second?
3. Old McDonald had a farm, on his farm he had sheep and ostriches. If there were a total of 37 heads and 120 feet on the farm, how many ostriches did he have? Remember, each animal has one head, and ostriches have two feet while sheep have four feet.
4. Diego's father is 5 times Diego's age. Two years ago he was six times Diego's age. How old is Diego?
5. Yesterday, Chef Ramsey used 44 eggs to make 6 Malva Puddings and 8 Lemon Meringues. Today, he used 52 eggs to make 6 Malva Puddings and 10 Lemon Meringues. How many eggs does it take to make a Malva Pudding?
6. Captain Liz wants to get her ship's cargo of yogurt from the east side of the Panama Canal to California before it gets too old to sell. Unfortunately, there is a long line of ships waiting to use the canal, and each day 40 ships are let into the canal at the beginning of the day and take all day to transit the canal. If Captain Liz can use the shortcut, it will take one day to transit the canal and another two days to get to California. If she must go around South America, the total trip will take Captain Liz 7.5 days. What is the maximum number of ships that can be in line in front of Captain Liz when the canal opens on the first day such that it still makes sense for her to use the canal?
7. A community group in South Carolina decides to buy a decommissioned battleship. (Decommissioned means that it is no longer in use and the weapons have been removed.) The ship costs \$5000000, but the buyers have a coupon for 40% off and another 10% off the reduced price. How many more dollars would they save if they instead had a coupon for 50% off the original price?
8. Commander Jerjerrod estimates that it will take another 150000 robot-hours to complete the Death Star, but, under pressure, he promises to meet a ridiculous deadline. Assume the deadline is 2 days away and he has 2000 robots available. How many hours would each robot need to work per day in order to have everything completed in time?
9. Bag A contains only red marbles, and bag B contains only blue marbles. If David takes 2 marbles out of Bag B and puts them in Bag A, there will be twice as many red



Team Test
Round 11424



marbles as blue marbles in Bag A. If instead David takes 3 marbles out of Bag A and puts them in Bag B, there will be the same number of red and blue marbles in Bag B. How many total marbles do the two bags contain?

10. In a list of seven distinct positive integers, the mean and median are both seven. What is the largest integer that can appear on the list?