

Winter Math Contest: Llama Level

Math Power

December 15, 2024

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By Dr. Li

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Name:
(First) _____ (Last) _____

Score: _____

School: _____ Grade: _____

Parent's Name: _____ Date: ____/____/____

Parent's Signature: _____ Parent's Email: _____@_____

1. This contest is conducted under my supervision.
2. There is no time limit for this contest.
3. No calculator/device should be used.
4. This test is not for distribution.
5. No email should be used for submission.

I choose to

By 1/6 Mail-in this test in stapled hardcopy: P. O. Box 10893, Rockville, MD 20849

By 1/8 Drop-In this test in stapled hardcopy: 10101 Molecular Dr, Ste 100, MD 20849 (3:00 – 6:30 pm)

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1. In my fruit basket, there are 13 pieces of fruit, 5 of which are apples. How can we express the number of apples as a fraction?
2. Robin and Kelly own neighboring cornfields. Robin harvested $4\frac{3}{10}$ acres of corn on Monday and Kelly harvested $2\frac{1}{10}$ acres. How many more acres did Robin harvest than Kelly?
3. Grace thought that a bus trip would take $\frac{7}{10}$ hr but the actual journey took $\frac{1}{5}$ hr longer. How many minutes did the actual trip take?
4. Carla and Jerome kept track of the miles they ran over the weekend. Carla ran three times as far as Jerome. If both ran a total of 16 miles, how far did Jerome run?
5. Sam practices soccer for $1\frac{1}{3}$ hours on Friday, $\frac{3}{8}$ hour on Saturday and $\frac{3}{4}$ hour on Sunday. How many hours of soccer did he practice altogether?
6. Janet has $7\frac{1}{2}$ centimeters of licorice. She divides the licorice into pieces that are $1\frac{7}{8}$ centimeters long. How many pieces of licorice will she have?
7. John charges \$12.50 an hour for his service. How much will he charge for 6 hours of work?
8. A cup of lemonade sells for 50¢. How many cups are needed to collect a total of \$20?

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9. A full dinner is served at the wedding reception. Four guests do not stay for dinner. This is $\frac{1}{12}$ of the total number of guests. How many guests attend the wedding reception in total?
10. Arnold caught $91\frac{1}{10}$ pounds of flounder and sold $70\frac{1}{5}$ pounds of them. How many pounds of fish were left unsold?
11. Whitney, Terra, Cara, and Angie ordered two medium pizzas. The pizzas cost \$6 each. Each pizza was cut into 8 equal pieces. Each person paid for the pizza according to how many pieces she ate. Whitney ate 3 pieces, Terra ate 4, Cara ate 4, and Angie ate 5. How much money did Whitney pay?
12. Maria spent $\frac{1}{3}$ her money on an adventure book. She also spent $\frac{1}{9}$ of the money on a bag of candy. How much did she have left?
13. Juanita needed 3 and $\frac{2}{3}$ hours to take a standardized test, and Jordan needed 5 and $\frac{1}{4}$ hours. How much more time did Jordan need than Juanita to take the test?
14. Timothy took $\frac{2}{3}$ hr to paint a portrait. This was $\frac{1}{4}$ hr shorter than the time he took to paint scenery. How many minutes did he take to paint scenery?
15. A piece of wood is 15 feet long. How many $\frac{3}{4}$ -foot sections can be cut from it?
16. Amanda walked for 3 hours to Kimberly's house at a speed of $2\frac{3}{4}$ miles per hour. How far did Amanda walk?
17. A class has 24 students. If $\frac{1}{3}$ of the class are girls, how many boys are in the class?

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18. The chef cut an 8 inch long sausage into several pieces, each $\frac{2}{3}$ -inch. How many pieces did he cut into?
19. A class has 27 students. If one-third of the students are absent because of the flu, and two-thirds of the attending students are girls, how many boys are present?
20. The denominator of a fraction is 5 more than the numerator. If 1 is subtracted from the numerator, the resulting fraction is $\frac{1}{3}$. Find the original fraction.
21. A quarter of the pieces of fruit in the bowl are apples. There are also 3 oranges, 2 pears and 1 banana. How many apples are there in the bowl?
22. Tom's height is $5\frac{3}{4}$ feet, while Eugene is $5\frac{1}{4}$ feet tall. How many inches is Tom taller than Eugene? (Hint: 1 foot = 12 inches)
23. An airline agent checked in $10\frac{1}{3}$ kg of baggage for one passenger and another $8\frac{5}{6}$ kg of baggage for his travel companion. How many kilograms of luggage did the agent check in all?
24. $\frac{1}{4}$ of my trail mix recipe is raisins and the rest is nuts. $\frac{3}{8}$ of the nuts are peanuts and the rest are almonds. What fraction of my trail mix are almonds?
25. If $\frac{2}{5}$ of the cards had been sold and there were 24 cards left, how many cards were sold?

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26. For a party, Jade mixes $4\frac{1}{2}$ gallons of lemonade, $2\frac{1}{4}$ times as much as the guests drink. How many gallons of lemonade do the guests drink?
27. What are the chances of rolling a die to get an even number?
28. Amos entered a writing contest and won first prize. He had to choose one of three bags of candy. His options were:
A) a $\frac{1}{2}$ pound bag,
B) a $\frac{3}{8}$ pound bag,
C) a $\frac{4}{5}$ pound bag.
Amos wanted the package with the most candy. Which one should he choose?
29. How long (in hours) does a tortoise take to move 1 mile if it is traveling at $2/15$ miles per hour?
30. Three fifths of the pieces of fruit in the bowl are apples. There are also 3 oranges, 7 pears and 2 bananas. How many apples are there in the bowl?
31. If one-third of a class were absent because of the flu, and three-fourths of the attending students were girls, and only 6 boys showed up, what is the total number of students in the class?
32. If Carl could type 30 words in 2 minutes, how long would it take him to finish a 300-word social studies report?
33. A bakery sells pies in 4 sizes: small, medium, large, and extra-large. If the pies come in 5 flavors: apple, peach, blueberry, banana, and plum, how many different combinations can be selected by a customer?

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34. David spends $\frac{1}{2}$ hour to ordering paper products and $\frac{3}{4}$ hour reviewing his waiter schedule every week. How much time does he spend accomplishing both tasks in a week?
35. A tennis match lasts 150 minutes. How many hours and minutes are there in the match?
36. Kelly's plane left at 7:55 pm. If she was an hour and 15 minutes late for the flight, what time did she arrive?
37. Jerry threw a party for 79 guests. Eight guests were seated to a table.
(a) How many tables were needed?

(b) How many people sat at the extra table?
38. Jerry will be on the train from 7:00 am to 3:00 pm. If he can read a novel in 2 hours, how many books should he bring with him so that he can be reading during the entire trip?
39. Fred and Gary rode the bus for 35 minutes to the mall. If they arrived at the mall at 11:30 am, what time did they get on the bus?
40. Kyle wants to get to school 20 minutes early. School starts at half-past eight. If he arrives to school at quarter after eight, is he as early as he wanted to be?
A) Yes
B) No
41. Jennifer walked to a store 2 miles away from her house, and back, on the two weekends. How many miles did she walk in total?

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42. Lauren used a laser to cut saw blades. She turned on the laser at 10:10 am and finished four hours later. What time did she turn it off?
46. Jim is three years older than his sister Jenny. How much older than Jenny will Jim be in 10 years?

Question set [43 - 44]

Joan just missed the 9:05 am train. The next train leaves at 10:45 am.

43. How long does she need to wait for the next train?
44. The trip will take her 3 hours and 10 minutes. What time will she arrive?
45. Jenny and Melody are twin sisters. The sum of their ages will be 24 in three years. How old was Jenny three years ago?
47. If it is 5:30 pm now, what time was it 40 min ago?
48. Dr. Callahan began eye surgery with a laser beam at 8:20 am. She finished at 11:15 am. How many hours and minutes did she operate in surgery?
49. Elaine works for a telephone company. She laid laser cable from 7:30 pm to 11:15 pm. How long did she work?
50. At 10:53 pm, the power went off for 1 hour and 15 minutes. What time did the power come back on?

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Question set [51 - 52]

Tina, a grocery clerk, used a laser to scan prices at a checkout counter. She worked $7\frac{1}{2}$ hours.

51. If she started at 9:00 am, what time did she finish?

52. If she finished at 5:45 pm, what time did she begin?

53. Sam ran the first lap of the race in 124 seconds. If he ran the second lap 16 seconds faster, how long did it take him to run both laps?

54. Dr. Callahan began laser eye surgery at 8:15 am and finished by 11:20 am. How long was she in surgery?

55. Christie had an appointment with Dr. Taylor at 2:25 pm. If she spent 55 minutes at the doctor's office, when did she leave?

56. Mr. Donohue cuts peg holes in canvas tents with a laser. He began cutting at 1:20 pm. If he stopped 4 hours and 10 minutes later, when did he finish?

57. It took Fred and Gary 1 hour and 35 minutes to ride the bus to the mall. If they arrived at the mall at 11:20 am, what time did they board the bus?

58. Dr. Chen, a brain surgeon, operated on a patient for 9 hours and 30 minutes using a laser. If he finished at 11:15 pm, when did he start?

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59. On a field trip, the bus left at 9:50 am and arrived at the destination at 2:20 pm. How long was the trip?
60. Michelle walked for 15 miles at a speed of 4 miles per hour. How many hours and minutes did she walk?
61. Eric and Melissa started making chocolate chips at 8:45 am. If they worked for 8 hours and 45 minutes, what time did they finish?
62. Jennifer, Kelly, and Lucy were given 4 dozen of pencils to share equally. How many will each girl get?
63. Jenny loves to eat Snickers bars. On Monday, she ate 16 bars; Tuesday, she ate 12 bars; Wednesday, she ate 9 bars; and Thursday, 19 bars. How many bars did she eat for the week in total?
64. Molly's flight was supposed to leave at 7:55 pm. If her plane is 1 hour and 15 minutes late, when will it leave?
65. If it is 2:40 pm now, what time was it 4 hours and 10 minutes ago?
66. Jason works 8 hours per day, earning 5 dollars per hour. If he saves up all of his money, how many days will it take him to buy a \$280 bike?

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67. Jessica leaves her house at 9:00 am and arrives at her destination at noon. If she walked at a speed of 3 miles per hour, how far did she walk?
68. Joan just missed the 9:07 am train. She needs to be in Atlanta by 2:00 pm. The next train leaves at 10:45 am. How many hours and minutes does she have to wait for the next train?
69. What time did they board the bus to arrive at the mall?
70. How long did they spend shopping?
71. What time did they arrive home?
72. Mr. Donohue started cutting peg holes in canvas tents with a laser at 1:20 pm. If he stopped 4 hours and 10 minutes later, what time did he finish?
73. A fraction is equivalent to $\frac{2}{3}$. The sum of its numerator and denominator is 60. Find the difference of the numerator and the denominator.
74. A full revolution of a minute hand is 360 degrees. How many degrees does the minute hand move in 25 minutes?
75. How many degrees are between the hour and minute hands when it shows 3:30?

Question set [69 - 71]

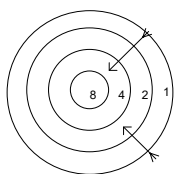
Fred and Nat rode the bus for 35 minutes each way. They got to the mall at 11:30 am, and boarded a bus to return by 1:15 pm.

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76. A gallon of gas cost \$2.80. How much does it cost for one and half gallons?

80. A drawer contains 3 red, 4 blue, and 5 white socks. In the worst case, what is the smallest number of socks you must fetch before you are assured of getting a mismatching pair?

77. A dart board is designed as below. As the figure shows, below, two arrows are shot as below and the total is 6. Find all possible totals if two arrows hit the board.



78. A digital clock shows 2:35. This is the first time after midnight when all three digits are different prime numbers. What is the last time before noon when all three digits on the clock are different prime numbers?

81. A farmer needs to fence a rectangular lot, with the length 3 ft longer than the width. If the fence is 106 ft long, what is the area of the lot?

82. A farm donates $\frac{1}{10}$ of its harvest $1\frac{3}{5}$ tons of vegetables to a church. How much does it donate?

79. A drawer contains 3 red, 4 blue, and 5 white socks. In the worst case, what is the smallest number of socks you must fetch before you are assured of getting a matching pair?

83. A jar filled with water weighs 10 pounds. When half of the water is removed, it weighs $5\frac{3}{4}$ pounds. How much does the jar weigh?

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84. A large box is 150 cm long, 57 cm wide, and 54 cm high. Small boxes are 50 cm long, 18 cm wide, and 19 cm high. Find the greatest number of small boxes that can be fit inside the large box.
85. A man has to be at work by 8:50 A.M. It takes him 15 minutes to dress, 20 minutes to eat, and 35 minutes to get to work. What time should he get up?
86. A map uses the scale of $\frac{1}{4}$ inch for 15 miles. If two cities are 2 inches apart on the map, how many miles apart are they located?
87. A motorist drives through two traffic lights every day. The probability that the motorist has to stop at the first light is 0.3, and at the second, 0.6. Find the probability that the motorist does
- a) not have to stop at either light;
 - b) have to stop at least one light.
88. A musical group started playing at 7:30 pm. If they finished playing at 11:10 pm, how many hours did the group play?
89. A normal duck has two legs.
A lame duck has one leg.
A sitting duck has no legs.
Donald has 33 ducks, with two more normal than lame. All his ducks have 37 legs in total. How many of them are normal, lame, and sitting ducks?
90. A number is greater than 275. It is less than 325. If you count by 5's you say its name. It can be divided exactly by 3 and 9. What is the number?