

The Math Masters of Minnesota Test Preparation Packet
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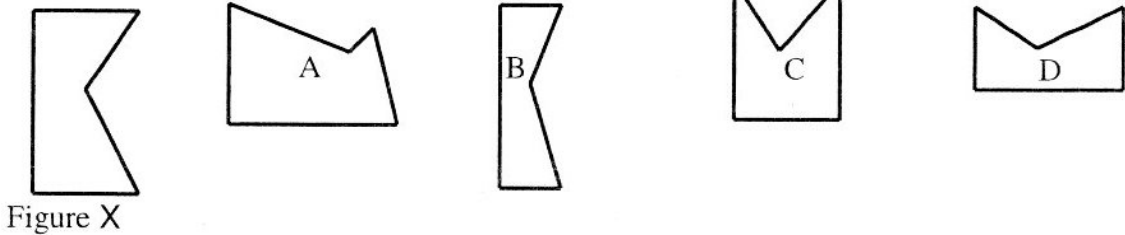
Test questions and answers developed by
St. Cloud State University Math Department

Packet and Hints compiled and formatted from tests by Deb Bendzick, Rochester, MN

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1. Janet said, "I took my dog on a long walk." Choose the most reasonable distance for the walk.
 A. 2 kilometers B. 2 meters C. 2 centimeters D. 2 millimeters

2. Two figures are similar if they have the same shape, but not necessarily the same size. Which one of figures A, B, C, or D is similar to Figure X?



3. Kevin walked an unusual path from his house to Adam's house. He walked 2 blocks east, then 3 blocks south, then 1 block east. Next he walked 4 blocks north, then 5 blocks east, then 1 block south. Finally he walked 2 blocks west to Adam's house. How many blocks apart are Kevin's and Adam's houses?

_____ blocks

4. How many prime numbers are between 6 and 20?
 A. 4 B. 5 C. 6 D. more than 6

5. At 7 a.m., the temperature was -12° Fahrenheit. By 3 p.m. that afternoon the temperature had risen to 19° Fahrenheit. How many degrees warmer was it at 3 p.m. than it was at 7 a.m.?

_____ degrees

6. Bill, Bob, and Brad are brothers. Bob is 6 years younger than Bill. Brad is 2 years older than Bob. In 3 years Bill will be 12. How many years older than Brad is Bill?

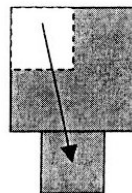
_____ years older

7. Sandy started babysitting at 7:45 p.m. and finished at 1:36 a.m. How many minutes did Sandy baby-sit?

_____ minutes

8. Jerry had a square piece of cardboard measuring 10 inches on a side. He cut a square out of one corner and taped it onto the bottom side as shown below. The total area of the new shape (shaded in the picture below) is:

- A. less than 100 square inches.
 B. exactly 100 square inches.
 C. greater than 100 square inches
 D. Not enough information is given to figure this out.



9. Hilary wrote the decimal 0.36 as a fraction in simplest form. She then multiplied the numerator and denominator. What answer should Hilary get?

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10. Which of the four numbers below has the largest prime number factor?

60 110 256 78

.....

11. Serena bought a shirt on sale for \$15.20. The sale price was determined by reducing the regular selling price by twenty percent. What was the regular selling price of Serena's shirt?

\$ _____

.....

12. The first five terms of a number pattern are shown below.

2.4 3.1 3.8 4.5 5.2

What is the sum of the seventh and eighth terms of the number pattern?

.....

13. I'm thinking of a two-digit number. It is a multiple of three. The units digit is one more than three times the tens digit. What number am I thinking of?

.....

14. On Sunday, Nick had \$100 in his piggy bank, and Jenny had \$140 in her bank. Starting on Monday, Nick plans to put \$6 in his bank every day. Jenny plans to put in \$2 every day, starting on that same Monday. On what day of the week will Nick and Jenny have the same amount of money in their banks?

A. Monday B. Tuesday C. Wednesday D. Friday

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15. Jolene found all the pairs of whole numbers that have a sum of 27. She then listed the product of each pair. What is the largest possible product on her list?

.....

16. Lemont bought a guitar. The selling price of the guitar was \$240, and the final cost after sales tax was added was \$254.40. What percent sales tax did Lemont pay?

_____ %

.....
 The following table shows the number of copies of paperback books sold in seven selected states.

STATE	NUMBER OF COPIES SOLD
Maine	98,478
Massachusetts	231,506
Michigan	163,119
Minnesota	810,520
Mississippi	670,649
Missouri	355,860
Montana	210,364
TOTAL	2,540,496

Use the above information to answer questions 17-19.

17. What is the mean number of paperback books sold in the seven states?

_____ books

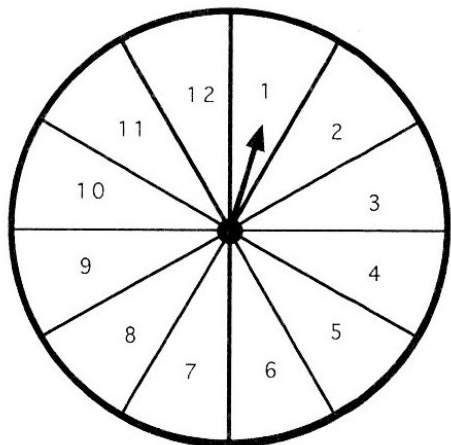
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 18. What is the median number of paperback books sold in the seven states?

_____ books

.....
 19. Express the number of paperback books sold in Minnesota as a percent of the total number of paperback books sold in the seven states. Round the answer to the nearest whole number percent.

_____ percent

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 Assume that when the spinner is spun, the arrow is equally likely to stop in any one of the 12 sectors.



Use the spinner to answer questions 20 - 24.

20. What is the probability that the arrow will stop in a sector with a prime number? Write the answer as a fraction in simplest form. Fact: The number 1 is not a prime number.

21. What is the probability that the arrow will stop in a sector with a number that is a multiple of 2? Write the answer as a fraction in simplest form.

22. What is the probability that the arrow will stop in a sector with a number that is a multiple of both 2 and 3? Write the answer as a fraction in simplest form.

23. What is the probability that the arrow will stop in a sector with a number that is a multiple of 2 but not a multiple of 3? Write the answer as a fraction in simplest form.

24. What is the measure of the central angle of one of the sectors?

_____ degrees

25. Sally gave 3 of her marbles to Josh and 5 of her marbles to Megan. Now they all have the same number of marbles. Altogether they have 27 marbles. How many marbles did Sally have before she gave marbles to Josh and Megan?

_____ marbles

26. The circumference of a circle is 426 cm. Which of the following is the best estimate for the length of the diameter?

- A. 70 cm B. 140 cm C. 180 cm D. 1330 cm

27. Madge has 18 new pencils. Each pencil is 8 inches long. Madge lines the pencils up, end-to-end. The first four pencils are shown in the picture below. How many yards long is the line of 18 pencils?



_____ yards

28. Suppose the pattern of stars below continues. How many stars will there be in picture 10?

*	* *	* * *	* * * *	* * * * *
*	* *	* * *	* * * *	* * * * *
	* *	* * *	* * * *	* * * * *
		* * *	* * * *	* * * * *
			* * * *	* * * * *
				* * * * *
picture 1	picture 2	picture 3	picture 4	picture 5

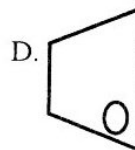
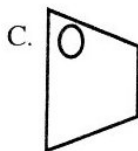
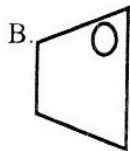
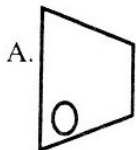
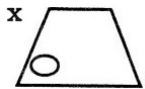
_____ stars

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29. On May 27th, Timmy's grandmother said: "Your birthday is two weeks from today." What is the date of Timmy's birthday?
Fact: May has 31 days.

- A. June 9th B. June 10th C. June 11th D. June 12th

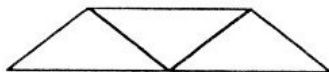
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30. An airplane left a New York airport and traveled 3000 miles to a California airport. It traveled at the rate of 600 mph. When the jet took off, the time in the New York airport was 5:00 a.m. When the jet landed, the time in the California airport was 7:00 a.m. How many hours long was the flight?
_____ hours

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31. Suppose Picture X is rotated 90° counterclockwise. Which picture below would show the result of this rotation?



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32. Jacy's favorite number is a two-digit number. The sum of the digits in the number is 7. The number is less than 48. The number is not a prime number. The number is not a perfect square. What is Jacy's favorite number?

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33. Jordan cut three identical triangles out of a piece of paper. He put them together to form the shape below.



The shape formed is called a:

- A. rhombus. b. trapezoid. C. parallelogram. D. rectangle.

.....
34. Which of the following statements about the number pi (π) is true?

- A. The value of pi is greater than four.
B. The value of pi is less than three.
C. The value of pi is greater than three but less than four.

.....

35. The numbers 3, 4, and 7 are each written on a separate 3 x 5 index card. The three cards are then placed into a paper bag. Without looking, one of the cards is selected and placed on a table. A second card is then selected, and placed to the right of the first card. What is the probability that the two-digit number formed is less than 40? Write the answer as a fraction in simplest form.

.....

36. Lance rode his bicycle at a constant rate to a friends' house. At 2:00 p.m. he was $\frac{1}{4}$ of the way to his friend's house, and at 2:05 p.m. he was $\frac{3}{8}$ of the way there. What time did he arrive at his friend's house?

_____ p.m.

.....

37. Maylana received the following diving scores from five judges during the state competition.

8.5 9.0 7.5 8.0 8.4

Her final diving score is found by eliminating the high and low scores, then finding the mean of the three remaining scores. What was Maylana's final diving score?

.....

38. Luis multiplied a prime number by $\frac{2}{3}$ and then multiplied this product by $\frac{3}{4}$. Which of the following operations would have given him the same result?

- A. multiplying by $\frac{8}{9}$
- B. dividing by $\frac{8}{9}$
- C. multiplying by 2
- D. dividing by 2

E. None of choices A, B,C or D would have given him the same result.

Write the letter of the correct response in the answer blank.

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39. What is the smallest positive number that is divisible by all the even numbers from 1 to 15?

.....

40. Three brothers, ages 16, 13, and 12, earned a total of \$213 by helping their grandfather sell corn-on-the-cob. Grandfather divided the \$213 so that each brother got \$25 more than his next-younger brother. How much money did the oldest brother get?

\$ _____

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41. Denny enjoys watching the animals at his grandmother's farm.

He noticed that $\frac{1}{3}$ of the animals were cows, $\frac{1}{4}$ were horses, and the remaining 10 animals were pigs. How many cows are on Denny's grandmother's farm?

_____ cows

.....

42. Find the sum of 50 percent of $\frac{2}{3}$ and 25 percent of $\frac{1}{3}$. Write the answer as a fraction in simplest form.

43. A lamp that regularly sells for \$30.00 is put on sale for 15% off. A sales tax of 6% is then charged to the purchase. How much will a customer pay for the lamp, including sales tax?

\$ _____

44. A bag contains only red marbles and blue marbles. There are 15 blue marbles, which is $\frac{3}{8}$ of the marbles in the bag. How many red marbles are in the bag?

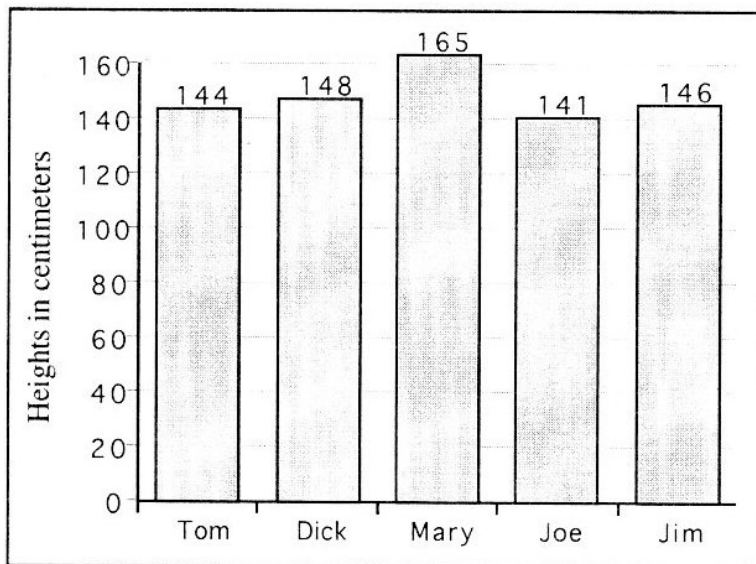
_____ red marbles

A bag contains 9 red marbles. The rest of the marbles are white. All of the marbles are identical except for their color. The probability of randomly selecting a red marble is $\frac{3}{8}$.

45. How many marbles are in the bag? _____ marbles

46. What percent of the marbles are white? _____ percent

The bar chart below shows the heights (in centimeters) of 5 students.



Use the information in the chart to answer questions 47 and 48.

47. Which student's height is closest to the mean height of the five students? _____

48. Which student's height represents the median height of the five students? _____

Before her birthday, Inez had 5 Hardy Boys books. The following numbers represent the number of pages in those books. 153 150 152 154 161

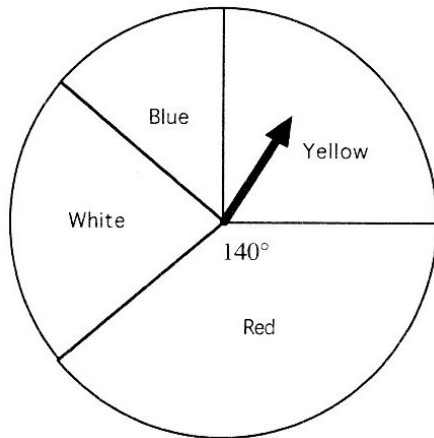
49. What is the median number of pages for the five books? _____ pages

50. What is the mean number of pages for the five books? _____ pages

51. On her birthday, Inez received the most recent Hardy Boys book to add to her collection. The mean number of pages for the two books with the fewest pages is 149. How many pages does the most recent book have?

_____ pages

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Use the spinner to answer questions 52-54.

52. What is the probability that the arrow will stop in the sector labeled Red? Write the answer as a fraction in simplest form.

53. The probability that the arrow will stop in the sector labeled White is $\frac{2}{9}$. Find the measure of the central angle of the sector labeled White.

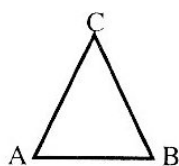
_____ degrees

54. The probability that the arrow will NOT stop in the sector labeled Blue is $\frac{31}{36}$. Find the measure of the central angle of the sector labeled Blue.

_____ degrees

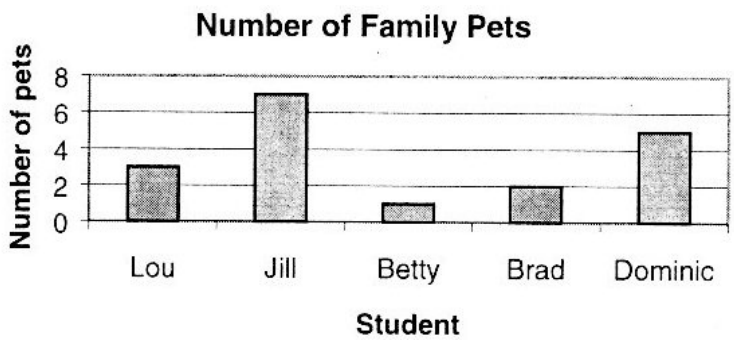
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55. Triangle ABC is an isosceles triangle. Side AC and side CB are the same length. Side AB is 2 cm shorter than side AC. The perimeter of the triangle is 19 cm. How long is side AB?



_____ cm

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 The chart below shows the number of family pets for five students in Ms. Michael's fifth grade class.



Use the chart above to answer questions 56 - 58.

56. How many pets do these five students have altogether? _____ pets

57. Who has three-fifths as many pets as Dominic? _____

58. What is the median number of pets for these five students? _____ pets

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59. Each lap of the Center City High School track measures $\frac{3}{8}$ of a mile.

Jeremiah ran $1\frac{1}{2}$ miles. How many laps did he run? _____ laps

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	Weight	Price
The table shows the prices that RECYCLE NOW is paying for aluminum.	Under 20 pounds	26 cents per pound
	20 to 40 pounds	30 cents per pound
	Over 40 pounds	35 cents per pound

For example, Billy brought in 32 pounds of aluminum and received \$9.60 from RECYCLE NOW. Shawn brought 37 pounds of aluminum to RECYCLE NOW. Megan brought 45 pounds to RECYCLE NOW.

60. How much more did Megan receive than Shawn? \$ _____

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61. Jordan purchased a toy truck that cost a total of \$9.52. He gave the store clerk a ten-dollar bill. If the clerk was out of quarters, what is the fewest number of coins Jordan could receive in change? _____ coins

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62. An office building has 12 stories. On each story there are 3 offices. In each office there are 2 waiting rooms. In each waiting room, there are 22 chairs. How many chairs are there altogether in the waiting rooms of this office building? _____ chairs

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