San Domenico Summer Packet
Rising 6th (for all incoming 6th grade students)

Please show your work to solve the following problems. All work should be completed on a SEPARATE SHEET of paper, or digitally on notability (You must include the question number, and please box your answer). You will be graded on completion and work shown. Be sure to make your thinking visible!

If you are unsure on a concept, please use the resources available to solve! (See Cover Letter)

Operations and Algebraic Thinking

1. Use <,   =,   >to complete the statement.

2. $(8 + 10) \div 2$ _____ $14 \div (2 + 5)$

3. Fill in the blank. _____ $\times 25 = 8 \times 100$

4. $75 \times 9 = (80 \times 9) - ($_____$\times 9)$

5. Fill in the blanks. $21 \times$____$= 210$ $40 \times$_____$= 28,000$

6. Susan and Monica have $186 altogether. Monica and Ruth have $372 altogether. Ruth has 4 times as much as Susan. How much does Susan have? *I recommend drawing a bar model or picture. Show your thinking!

7. On Sunday, Sheldon bought $4\frac{1}{2}$kg of plant food. He used $1\frac{2}{3}$kg on his strawberry plants and used $\frac{1}{4}$kg for his tomato plants. How many kilograms of plant food did Sheldon have left?

8. Mrs. Taylor is making identical costumes for the dancers in the dance club. She uses 126 pink ribbons and 108 yellow ribbons.
    a.   What is the maximum possible number of costumes she can make?
    b.   How many pink ribbons and how many yellow ribbons are on each costume?

9. Tony saw 11 riders and 26 wheels. How many bicycles did he see? How many tricycles?

10. James ate three pieces of candy. Bill ate twice as much as James. Tom ate twice as much as Bill. How many total pieces did the three boys eat?

11. Larry is 10 years old and his sister is 7 years old. In how many years' time will their total age be 25 years?

12. In a math quiz, 20 problems are given. 5 points are given for each correct answer and 2 points are deducted (taken away) for each incorrect answer. Ashley scores 51 points. How many correct answers does she have?

13. A castle has to be guarded 24 hours a day. Five knights are ordered to split each day's guard duty equally. How long will each knight spend on guard duty in one day?
    a. Record your answer in hours
    b. Record your answers in hours and minutes

14. Dave drove 150 miles from Ann Arbor, Michigan to Grand Rapids, Michigan. How many miles did he drive if he made 3 round trips?

15. A bus travels 36 miles in 45 minutes. At this rate, find the number of miles the bus travels in 60 minutes.

16. $5 + 8 \cdot 2 - 4$

17. $10 \div (3 + 2) + 9$

18. $[10 + (25 \cdot 2)] \div 6$

19. Insert Parentheses ( ) to make the following statements true.

$22 - 4 \div 2 = 9$ $\qquad\qquad\qquad\qquad$ $5 \text{ X } 5 + 5 - 5 = 45$

Numbers and Operations in Base Ten

20. $3.5 + 2.8$ $\qquad$ 21. $9.7 + 8.8$

22. $42.78 + 19.56$ $\qquad$ 23. $0.0997 + 1.4$

24. $0.663 + 1.58$ $\qquad$ 25. $0.95 - 0.68$

Please solve using any strategy. Show all of your work.

26. $2124 \div 4$ $\qquad$ 27. $981 \cdot 65$

28. Is the first number divisible by the second? Explain how you know **without** doing the division.

       378 by 3?   487 by 2?

29. Write the prime numbers between 20 & 30.

30. What are the prime numbers between 2 and 10?

31. Find the greatest common factor of 100 and 75.

32. Find the greatest common factor of 32 and 56.

33. What is 5,622 divided by 92?

34. $69.22 + 28.52$

35. Write these decimals:
    a. Seventeen tenths
    b. Nine hundredths

36. List these numbers in order from <u>greatest to least</u>:
         2.01   2.09   2.9   2.91   2.19

37. <u>Estimate</u> the quotient by rounding to the nearest 10:
         $514 \div 50$

38. Which set of numbers contains multiples of both 3 and 4?
    A. 16, 21, 32
    B. 24, 36, 48
    C. 12, 15, 24

39. What is the value in the underlined number?
        4,531,128.109<u>2</u>

40. $1,025 \times 5$

41. 367×43

42. $3.75 \times .25$

43. $8.04 \div 0.2$

44. An ounce of pine nuts costs $1.40. If Ellen buys 2.5 ounces of pine nuts, how much will she have to pay?

45. Match each number (left column) with its <u>divisibility</u> numbers (right column)

60	3,9
48	2,3
81	2,3,5,10

46. How can you tell if a number is odd or even?

47. A total of 114 people have signed up to play in a basketball tournament. There are 3 people on each team. Will everyone who has signed up have a spot on a 3-person team?

48. List the factors of 28

49. I am a common multiple of 2, 4 and 7. The product of my digits is 32. What number am I?

50. Which of the following decimals are close to one half? (You may choose more than one)
   A. .05
   B. .52
   C. .78
   D. .49
   E. .29

51. Fill in the missing times in this sequence:
      5:00, 5:35, _____, 6:45, _____

52. You have $17 to spend on rides that cost $2 each. If you go on as many rides as you can afford, how much money will you have left?

53. Mental Math- Triple these numbers
      30: _____   110: _____   50: _____

54. Which number is closest to 400,000?

   a. 437,846   b. 379,999   c. 381,001   d. 429,999

55. How many times greater is the 9 in "a" than in "b"?

    a. 38,925,000,000   b. 38,829,000,000

56. Mental Math- A human being blinks about 1,500 times in $2\frac{1}{2}$ hours. How many times will the human blink in 10 hours?

57. Calculate efficiently (and please show your work!)

$$(5 \cdot 7) \div 5$$

58. Calculate efficiently (and please show your work!)

$$(5 \cdot 7 \cdot 10) \div 5$$

59. Calculate in two ways. Please show your work.

$$(8 \cdot 15 \cdot 20) \div 2 =$$

$$(8 \cdot 15 \cdot 20) \div 2 =$$

60. Calculate in two ways. Please show your work.

$$(9 \cdot 15 \cdot 10) \div 3 =$$

$$(9 \cdot 15 \cdot 10) \div 3 =$$

Numbers and Operations-Fractions

61. I spend 3 hours a day on a computer. What fraction of the day do I spend on the computer? Write your answer in simplest form.

62. Please solve the following using mental math as best you can. $2\frac{4}{9} + 4\frac{5}{9}$

63. $4\frac{5}{6} + 3\frac{3}{4}$

64. $\frac{3}{4} + \frac{7}{8}$

65. $5\frac{2}{5} + 8\frac{4}{5}$

66. $3\frac{1}{5} - \frac{3}{5}$

67. $1\frac{5}{8} \times 4\frac{1}{3}$

68. $\frac{3}{12} + \frac{3}{4} + \frac{5}{8}$

69. $5\frac{1}{4} - 2\frac{3}{4}$

70. 6 pizzas were shared equally among a group of children. Each child got $\frac{1}{9}$ of a pizza. How many children were in the group?

71. Maria buys $8\frac{1}{3}$ pounds of beef to make tacos for a party. She uses $\frac{5}{9}$ pound of beef for each taco. How many tacos can Maria make?

72. 25 pints of apple juice are poured into $\frac{1}{2}$ pint bottles. How many bottles can be filled with apple juice?

73. The length of a field was 20 yards. Mr. Whaley planted a row of peas every $\frac{3}{4}$ yard. How many rows of peas did Mr. Whaley plant?

74. $28 \div \frac{1}{5}$

75. $\frac{3}{8} \div 12$

76. Claire stood in line to ride the Batman roller coaster. After Claire stood in line for a half-hour, she realized she waited only one quarter of the total time she had to wait in line. How long will she have to wait in line?

77. $\frac{5}{6} \times \frac{1}{3} \times \frac{3}{5}$

78. Enter the lowest whole number in the numerator to make the comparison true.

$$\frac{\square}{5} > \frac{1}{4}$$

79. Mental Math: $4 - 3\frac{9}{10}$

80. Mental Math: $\frac{1}{2} + \frac{1}{4}$

Compare using $<, >, =$

81.   **2 tenths + 11 hundredths** ◯ **0.13**

82.   **13 tenths + 8 tenths + 32 hundredths** ◯ **2.42**

83.   **342 hundredths + 7 tenths** ◯ **3 + 49 hundredths**
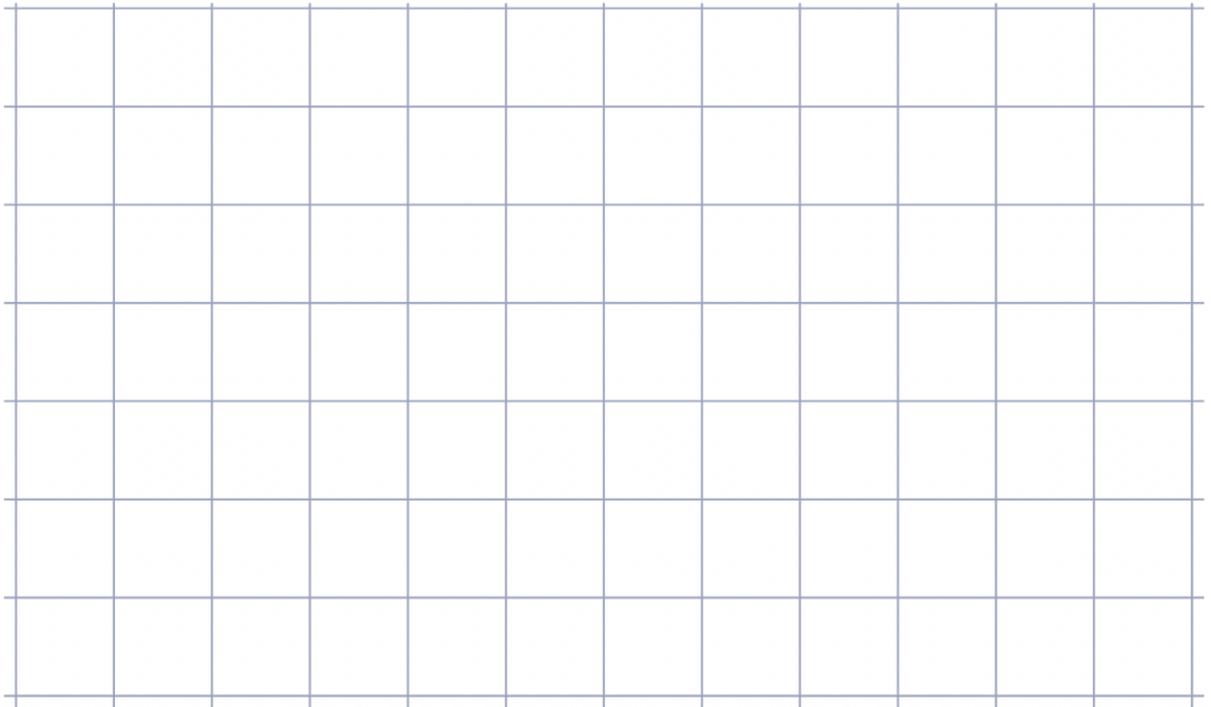
Measurement and Data

84. You have a container filled with cards that are numbered from 1-100. If you choose a card at random, what is the probability that the card will be:
   A. Evenly divisible by 2?
   B. Evenly divisible by 10?

85.

Use your ruler to draw a rectangle that measures $4\frac{1}{2}$ by $2\frac{3}{4}$ inches, and find its area.

Geometry

86. What is the length of a square that has a total area of 121 square centimeters?

87. A rectangular playground has an area of 3,392 square meters. If the width of the rectangle is 32 meters, find the length.

88. A square is 8 inches on each side. Is the area of the square larger than the area of a rectangle that is 6 inches by 11 inches? Show your work to prove your answer.

* Challenges/Optional! (You can work on any or all of them!)

1. Find the prime factorization of 32

2. Find the prime factorization of 75

3.   Find the prime factorization of 400

4. If it is 3:00 P.M. and you move the minute hand of the clock 270 degrees clockwise, what time will it be?

5. Alex, Beth, and Carol share a sum of money. Alex receives 0.7 of the sum of money. Beth and Carol receive the rest of the money. If Beth receives $\frac{5}{12}$ of the money shared by both her and Carol, and Carol receives \$847, how much money does Alex get?

6. Suppose *p* is a prime number greater than 2. Does *p+1* represent a prime or a composite number? Explain.

7. Peter Piper picked a peck of pickled peppers. 1 peck = $\frac{1}{4}$ bushel and 1 bushel = $\frac{1}{9}$ barrel. How many more pecks must Peter Piper pick to fill a barrel?

8. At a birthday party, one-half of the people only drank lemonade, one-third drank only cola, 15 people drank neither, and nobody drinks both. How many people were at the party?

9. At the Marin County fair, 220 balloons are given to 40 children, three-eighths of whom are girls. Each boy receives the same number of balloons. Each girl receives twice as many balloons as each boy. How many more balloons do all the girls receive than all the boys?

10. Ms. Bukata wants to buy pizza for the Mathletes party. There will be between 40 and 50 people attending the party. A large pizza from Stefanos serves 3 to 4 people. Each large pizza costs \$11.50. If Ms. Bukata wants to buy enough pizza so that people will not be

hungry and there will be the <u>least amount</u> of pizza left over, how many pizzas should she buy?

11. Ethan correctly answers 80% of the total questions on his history test. He correctly answered 32 questions. How many questions were on Ethan's history test?

12. Heather has a rectangular yard. She measure it and finds out it is $24\frac{1}{2}$ feet long by $12\frac{4}{5}$ feet wide. How much sod will she need to completely cover the yard?

13. Jessica completed $\frac{7}{8}$ of a training run in 2 hours and 55 minutes. If Jessica runs at a constant pace, what is the number of minutes left in her run?

14. $10\frac{1}{4} \div \frac{3}{4}$

15. $2\frac{3}{4} \div 6$

16. Calculate ***efficiently*** (and please show your work!)

$$(3 \cdot 13 \cdot 108 + 26 \cdot 30 \cdot 210) \div 13$$

17. If 3 out of 5 dentists recommend sugarless gum, what percent *don't* recommend sugarless gum?

18. The digits of a four-digit positive integer add up 14. The sum of the two middle digits is nine, and the thousands digit minus the units digit is one. If the integer is divisible by 11, what is the integer?

**Super Spicy Problems (Optional!)

1. All of the marbles in a jar are either red or blue. One-fifth of the marbles are red. If one of the red marbles is removed, then one-sixth of the marbles in the jar will be red. How many blue marbles are in the jar?

2. In your candy bag, $\frac{1}{6}$ of the candies are Snickers, $\frac{1}{4}$ of the candies are Dots, $\frac{1}{8}$ of the candies are Smartees, $\frac{1}{3}$ are M&Ms and the remaining 12 candies are Twix. How many candies are there in your candy bag?

3. The average age of the mother, the father, and their three children is 21, while the average of the children is 11. How old is the father if he is 4 years older than the mother?