SUMMER PACKET
PREPARING FOR 6th GRADE MATHEMATICS

SUFFIELD PUBLIC SCHOOLS

Supply List	Video/ App Resources	Pre-Requisites
- Pencils - Colored Pencils - Notebook	- https://www.khanacademy.org/ - https://mathantics.com/ - https://webmath.com/ - https://www.mathplanet.com/ - http://www.math.com/ - https://www.ixl.com/math/algebra-1 - https://www.wyzant.com - https://purplemath.com	- Operations with whole numbers - Order of Operations - Recognizing patterns - Understanding numbers and place value. - Writing numerical expressions - Operations with Decimals (Adding, Subtracting, Multiplying, and Dividing) - Adding and Subtracting Fractions - Multiplying and Dividing simple fractions and whole numbers. - Solving simple word problems. - Finding volumes of boxes - Identifying and plotting points on a coordinate plane

To Any student entering 6th Grade Mathematics in the fall –

To ensure your success in 6th Grade Mathematics, you need to be proficient in the foundational skills and concepts that you have learned over your time at McAlister Intermediate School, as this will enable you to easily grasp the new concepts that will be covered, and apply them to solve mathematical and real-life problems. We highly recommend that you take time to review and solidify your knowledge of these topics over the course of the summer. Just like we take the time to practice our skills in other activities (soccer, baseball, softball, dancing, running, swimming), we also need to practice our mathematical skills.

Learning Mathematics is like building a house; if your foundation is weak, you can't build high, and if there are gaps or floors that are not complete, the next floor is nearly impossible to build. **Our wish and hope for all our math students is not just to get by, but to excel in mathematics, and to ultimately enjoy and appreciate the beauty and power of mathematics** – a subject we love and hope we can get you excited to continue learning. We are providing you with resources to do as much preparation and solidification of the basic skills needed to engage with the course material fluently and confidently.

Attached is a summer packet which has practice problems for several of the major topics that you have studied over the last couple of years. There are also links to on-line resources that you can access for help. Please take the time to work through the packet by doing a couple of problems each day, and use the resources that are provided for review when you do not remember how to solve a problem. You can certainly use other on-line resources that you can find for help, or ask relatives and/or friends for help.

We wish you a happy summer, and hope you return in the fall with high expectations for yourself, the willingness to ask questions and reach out for help when you are struggling, and with the confidence that you can be successful.

Suffield Public Schools Summer Review
For Students Entering
<u>Math 6</u>

For additional help, you can find online tutorials on specific math concepts and skills at:
http://www.khanacademy.org/
http://www.math.com/

All of the following exercises should be completed without the use of a calculator.

I. Evaluate the following expressions.

1) $4 \times (3-1) + 2$

    $4 \times 2 + 2$ ⑩

      $8 + 2$

2) $10 - [(4 \times 3) \div 3] + 8$

   $10 - [12 \div 3] + 8$ ⑭

   $10 - 4 + 8$

3) $44 \div 4 - [(3 \times 2) + 4]$

   $11 - [6+4]$ ①

   $11 - 10$

II. Write a numerical expression for each phrase.

4) 5 more than 7 $7 + 5$

5) 6 less than 10, then add 2 $(10 - 6) + 2$

6) Multiply 6 and 9, then divide by 3 $(6 \times 9) \div 3$

III. Write a phrase for the numerical expression.

7) $21 - 7$

   Seven less than 21

8) $5 + (6 \times 3)$

   Six multiplied by 3, then add 5

9) $(9-5) \div 4$

   Five less than 9 then divide by 4

IV. Solve the following word problems.

10) John had 15 cookies. He ate 5 of them. Then, he divided the remaining cookies evenly with his friend. How many cookies does John now have? Write a numerical expression to show this.

$(15 - 5) \div 2$ John has 5 Cookies

11) Melissa has 15 red gummy worms and 12 blue gummy worms. Shannon has 2 times as many gummy worms as Melissa. How many gummy worms does Shannon have? Write a numerical expression to show this.

$(15 + 12) \times 2$ Shannon has 54 gummy worms.

V. Use the number pattern to answer the questions.

4, 8, 12, 16, 20, ...

12) What is the rule for the pattern?   Add 4 to the previous number

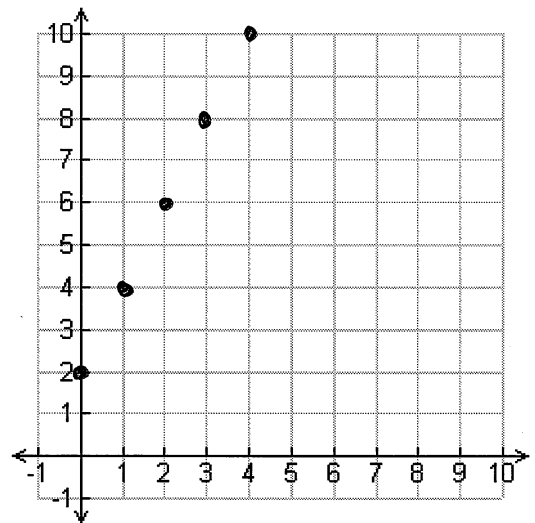13) What is the next term in the pattern?

    $20 + 4$ ㉔

VI. Fill in the table and graph each pair in the coordinate plane.

14) Complete the pattern in the table and write it as an ordered pair. The rule is add 2.

Pattern 1	Pattern 2	Ordered Pair
0	2	(0,2)
1	4	(1,4)
2	6	(2,6)
3	8	(3,8)
4	10	(4,10)

VII. Write the following numbers in the table and complete the sentences.

Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones
	2	3	3	1	8

15) 23,318

In the number 24,458, the 4 in the thousands place is __10__ times as much as the 4 in the hundreds place.

16) 729,037

In the number 729,037, the 7 in the hundred thousands place is __100,000__ times as much as the 7 in the ones place.

Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
9	8	.	4	5	1

17) 98.451

In the number 98.451, the 5 represents __5/100__ (write the value as a fraction such as $\frac{x}{100}$, $\frac{x}{10}$, etc.)

In the number 98.451, the 1 represents __1/1000__ (write the value as a fraction such as $\frac{x}{100}$, $\frac{x}{10}$, etc.)

In the number 98.451, the 4 represents __4/10__ (write the value as a fraction such as $\frac{x}{100}$, $\frac{x}{10}$, etc.)

VIII. Write the expanded number as a decimal.

18) $(1 \times 100) + (3 \times 10) + (6 \times 1)$

100 + 30 + 6

(136)

19) $(2 \times 10) + \left(4 \times \dfrac{1}{10}\right) + \left(7 \times \dfrac{1}{100}\right)$

$20 + \dfrac{4}{10} + \dfrac{7}{100}$

(20.47)

IX. Compare using <, >, or =.

20) 8.575 __<__ 8.757

21) 0.256 __>__ 0.25

22) 0.04 __>__ 0.004

X. Name a value between the two given numbers.

23) 9.5 and 10

9.7

24) .56 and .57

.565

XI. Solve the following word problems.

25) The average speed in the Indianapolis 500 race in 2013 was 187.433 miles per hour. What was the average speed to the nearest tenth of a mile per hour?

187.4 miles per hour.

XII. Add or subtract the following.

26) 19.578 + 2.681

19.578
2.681

22.259

27) 21.8 − 12.5

21.8
− 12.5

9.3

28) 74.322 − 61.598

74.322
− 61.598

12.724

XIII. Solve the following word problems.

27) Jessica bought a sandwich for $6.59 and a drink for $2.29. How much did she pay for her lunch?

$6.59 + $2.29   Jessica Paid $8.88

28) Jack weighed a jar of candies. It's original weight was 18.765 ounces. He ate the candies during the week and weighed the jar again. It now weighs 9.761 ounces. How many ounces of candy did he eat over the week?

18.765
− 9.761

9.004   Jack ate 9.004 ounces of Candy.

XIV. Multiply the following.

29)
```
    7
 5 2,7 6 8
 ×      9
```
474,912

30)
```
  1,8 0 9
 ×    2 1
   3 6 1 8
   1 8 0 9
  3 7 9 8 9
```

31)
```
    8 5 2
 ×    4 8
  3 4 0 8
  6 8 1 6
  4 0 8 9 6
```

29)
```
  7.2 1 3
 ×      4
 2 8.8 5 2
```

30)
```
  3,4 0 8
 ×    6.8
 2 0 4 4 8
 2 7 2 6 4
 2 3 1 7 4.4
```

31)
```
  1 0.8 9
 ×    .0 2
 0 0 0 0
   2 1 7 8
 0.2 1 7 8
```

XV. Solve the following word problems.

32) Each Snickers bar at the store costs $1.09. How much do 5 Snickers bars cost?

$$5 \times \$1.09 = \$5.45$$

33) There are 198 students in the 6th grade. If each student pays $25 to go on a trip to Six Flags, how much will it cost for everyone total?

$$198 \times \$25 = \$4950.00$$

34) Grace bought 3.5 pounds of turkey for sandwiches which costs $7.99 per pound. How much did she spend?

$$3.5 \times 7.99 = 27.965$$

$$\$27.97$$

$$\begin{array}{r} 7.99 \\ \times\, 3.5 \\ \hline 2397 \\ 3995 \\ \hline 27.965 \end{array}$$

XVI. Divide the following.

35) $486 \div 18$

$$\begin{array}{r} 27 \\ 18\,\overline{|486} \\ 36 \\ \hline 126 \\ 126 \\ \hline 0 \end{array}$$

36) $988 \div 36$

$$\begin{array}{r} 27.44 \\ 36\,\overline{|988} \\ 72 \\ \hline 268 \\ 252 \\ \hline 160 \\ 144 \\ \hline 160 \end{array}$$

37) $1342 \div 61$

$$\begin{array}{r} 22 \\ 61\,\overline{|1342} \\ 122 \\ \hline 122 \\ 122 \\ \hline 120 \\ 0 \end{array}$$

38) $12.48 \div 4$

next page

39) $203.75 \div .25$

next page

40) $71.16 \div 1.2$

next page

XVII. Solve the following word problems.

41) Marcus spent $72 at the store on pants. If each pair of pants costs $24, how many pairs of pants did he buy?

$$\$72 \div \$24 = 3$$

Marcus bought 3 pairs of pants.

42) There are about 50,274 seats in Yankee Stadium and approximately 98 rows. About how many seats are in each row, assuming every row contains the same amount of seats?

$$\frac{50274}{98} = 513$$

Work on next page

43) During the winter of 2013 – 2014, 46.75 inches of snow fell in CT. If the snow fell over a total of 11 days, about how much snow was there per day?

$$\frac{46.75}{11} = 4.25 \text{ inches per day}$$

XVIII. Add or subtract the following.

44) $3\frac{1}{8} + \frac{1}{2}$

$$3\frac{1}{8} + \frac{4}{8}$$

$$3\,5/8$$

45) $4\frac{1}{4} + 2\frac{2}{3}$

$$4\frac{3}{12} + 2\frac{8}{12} = 6\frac{11}{12}$$

46) $1\frac{4}{5} + 5\frac{1}{10}$

$$1\frac{8}{10} + 5\frac{1}{10} = 6\frac{9}{10}$$

47) $4\frac{9}{12} - \frac{1}{3}$

$$4\frac{9}{12} - \frac{4}{12}$$

$$4\,5/12$$

48) $6\frac{1}{2} - 2\frac{2}{3}$

$$6\frac{3}{6} - 2\frac{4}{6}$$

$$5\frac{9}{6} - 2\frac{4}{6}$$

$$3\,5/6$$

49) $5\frac{2}{3} - 1\frac{7}{9}$

$$5\frac{6}{9} - 1\frac{7}{9}$$

$$4\frac{15}{9} - 1\frac{7}{9}$$

$$3\frac{8}{9}$$

38)

$$4\overline{)12.48} = 3.12$$

```
         3.12
      ┌─────────
    4 │ 12.48
        12
        ───
        0.4
       (0.4)
       ─────
          8
          8
          ─
          0
```

39) $203.75 \div .25$

```
         815
      ┌───────
   25 │ 20375
       (200)
       ─────
         37
        (25)
        ────
         12 5
         125
         ───
          0
```

40) $1.2\overline{)71.16}$

```
         59.3
      ┌───────
   12 │ 711.6
       (60)
       ─────
        111.6
       (108)
       ─────
         3.6
```

$\boxed{59.3}$

42)

```
         513
      ┌───────
   98 │ 50274
       (490)
       ─────
         127
         (98)
         ────
         294
        (294)
        ─────
          0
```

Approximately 513 seats in each row.

43)

```
         4.25
      ┌───────
   11 │ 46.75
        44
        ──
        27
       (22)
       ────
        55
       (55)
       ────
         0
```

4.25 inches each day.

XIX. Solve the following word problems.

$3\frac{1}{4} + 2\frac{1}{2} \Rightarrow 3\frac{1}{4} + 2\frac{2}{4} = \boxed{5\frac{3}{4}}$

50) For $3\frac{1}{4}$ hours, Paul played basketball with his friends. For another $2\frac{1}{2}$ hours, Paul helped his father by mowing the lawn. How many hours did he spend playing basketball and mowing the lawn altogether?

$\boxed{5 \;^{3}/_{4} \text{ hours}}$

51) Kate has $5\frac{3}{4}$ cups of flour. She used $2\frac{1}{3}$ cups for baking a cake. How much flour does she have left?

$5\frac{3}{4} - 2\frac{1}{3} \Rightarrow 5\frac{9}{12} - 2\frac{4}{12} = \boxed{3\frac{5}{12} \text{ Cups of flour is left}}$

XX. Multiply the following and provide the answer in simplest form.

52) $9 \times \frac{2}{3} = \frac{18}{3} = \boxed{6}$

53) $\frac{3}{5} \times \frac{5}{6} = \frac{15}{30} = \boxed{\frac{1}{2}}$

54) $10\frac{3}{4} \times \frac{4}{5}$

$\frac{43}{4} \times \frac{4}{5} = \frac{43}{5}$

$= \boxed{8\;^{3}/_{5}}$

XXI. Solve the following word problems.

55) Amy is making strawberry shortcake. She has 6 cakes and each cake contains $\frac{3}{4}$ of a cup of strawberries. How many cups of strawberries does she need?

$\frac{6}{1} \times \frac{3}{4} = \frac{18}{4} = \boxed{4\frac{1}{2} \text{ Cups of Strawberries}}$

56) Mindy bought $\frac{6}{7}$ of a yard of fabric. She used $\frac{1}{3}$ of it to make a small pillow case. How many yards did she use?

$\frac{1}{3} \times \frac{6}{7} = \frac{2}{7}$

Mindy used $\frac{2}{7}$ of a yard

XXII. Divide the following.

57) $\frac{1}{6} \div 4$

$\frac{1}{6} \times \frac{1}{4} = \boxed{\frac{1}{24}}$

58) $12 \div \frac{1}{4}$

$12 \times \frac{4}{1} = \boxed{48}$

59) $\frac{1}{4} \div 3$

$\frac{1}{4} \times \frac{1}{3} = \boxed{\frac{1}{12}}$

XXIII. Solve the following word problems.

60) Bob has a recipe that makes 8 cups of granola. How many $\frac{1}{4}$ cup servings does it make?

$8 \div \frac{1}{4} \Rightarrow 8 \times \frac{4}{1}$ $\boxed{32}$ $\frac{1}{4}$ cup Servings

61) Janet has $\frac{1}{2}$ of a pizza left. She is splitting it with 5 people. How much of the pizza does each person get?

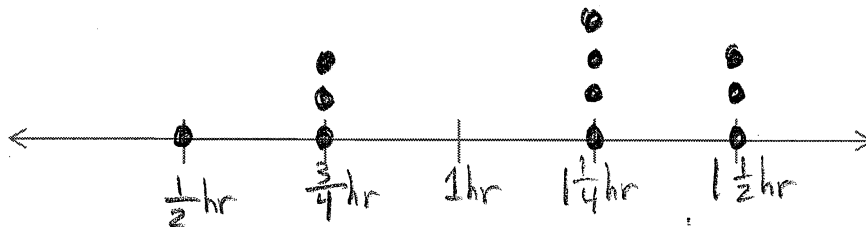$\frac{1}{2} \div 5 \Rightarrow \frac{1}{2} \times \frac{1}{5} = \frac{1}{10}$

Each person gets $\frac{1}{10}$ of the pizza.

XXIV. Create a line plot for the following data and answer the questions that follow.

Time spent practicing the violin:

$1\frac{1}{4}$ hour, $\frac{3}{4}$ hour, $1\frac{1}{2}$ hour, $\frac{1}{2}$ hour, $\frac{3}{4}$ hour, $1\frac{1}{4}$ hour, $1\frac{1}{2}$ hour, $1\frac{1}{4}$ hour, $\frac{3}{4}$ hour, $1\frac{1}{2}$ hour, $1\frac{1}{4}$ hour

62) Create a line plot for this data. Be sure to label fully.

$1\frac{1}{4}$ hours ✓✓✓✓

$\frac{3}{4}$ hour ✓✓✓

$1\frac{1}{2}$ hour ✓✓✓

$\frac{1}{2}$ hour ✓

63) How many times were spent practicing the violin more than $\frac{3}{4}$ of an hour?

7 times

64) What was the most common amount of time spent practicing the violin?

$1\frac{1}{4}$ hours ___ 4 times .

XXV. Find the volume of the following.

65)

4 cm   5 cm   3 cm

Volume = 3 × 4 × 5
= 60 cm³

66)
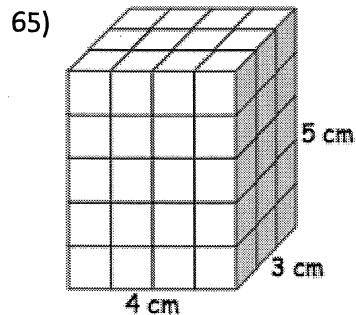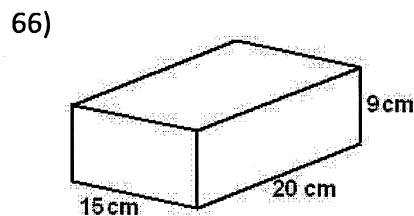
9 cm   20 cm   15 cm

Volume = 15 cm × 20 cm × 9 cm
= 300 cm² × 9 cm
= 2700 cm³

67)

10 m   5 m   4 m
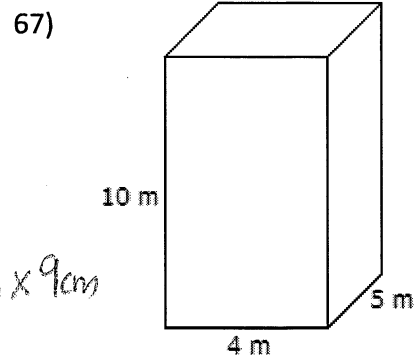
Volume = 10 m × 4 m × 5 m
= 10 m × 20 m²
= 200 cm³

68)
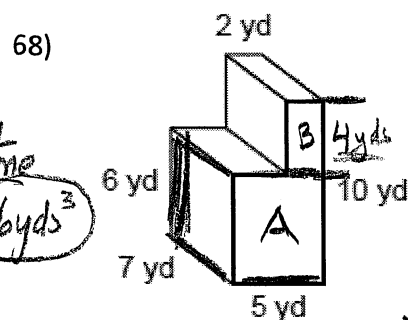
TOTAL volume = 266 yds³

2 yd   B   4 yds   6 yd   10 yd   A   7 yd   5 yd

Box A
5 yds × 7 yd × 6 yds
35 yd² × 6 yds
= 210 yds³

Box B
2 yds × 7 yds × 4 yds

69)

2 ft   2 ft   4 ft   A   B   3 ft   6 ft

6 ft − 2 ft
= 4 ft

#69

4ft
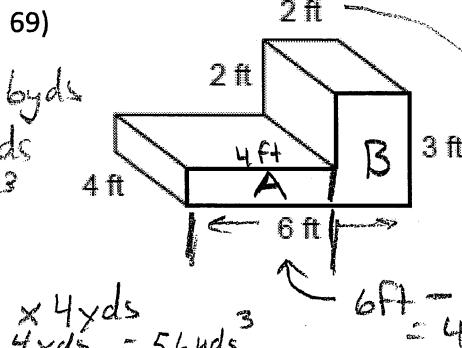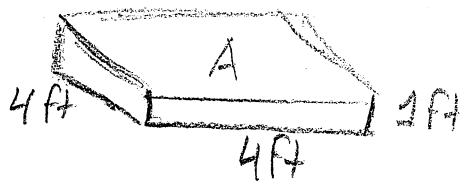
4ft × 4ft × 1ft

= 16 ft^3

Volume of box A

2ft

3ft

4ft
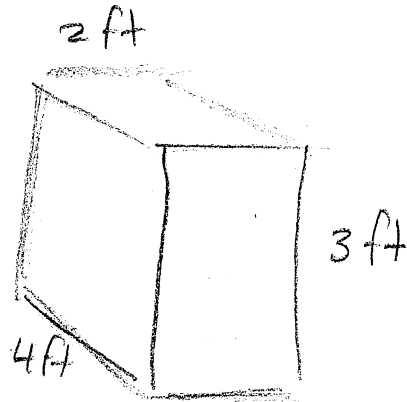
Volume of Box B

4ft × 2ft × 3ft

8ft^2 × 3ft

24 ft^3

TOTAL Volume = 16 ft^3 + 24 ft^3

= 40 ft^3

$$\frac{6ft}{2ft}=3$$

$$12ft \quad \frac{12ft}{2ft}=6$$

6ft
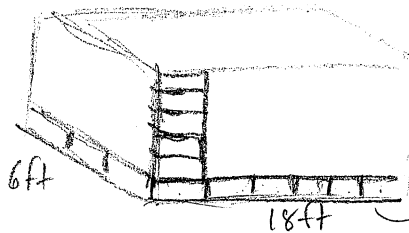
18ft

$$\frac{18ft}{3ft}=6$$

XXVI. Solve the following word problem.

70) Mrs. Martin is moving her house. The truck that she is using to move is a rectangular prism that is 12 feet high, 18 feet long, and 6 feet wide. The boxes are 2 feet high, 3 feet long, and 2 feet wide. How many boxes can she fit in the truck?

# of Boxes = 6 × 6 × 3
= 36 × 3 = 108 Boxes

XXVII. Use the figures below to answer the following questions.
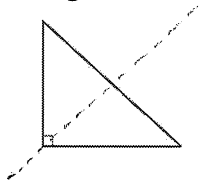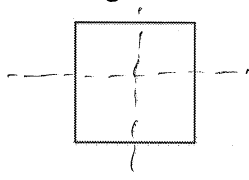
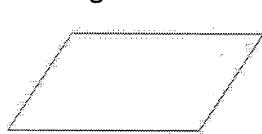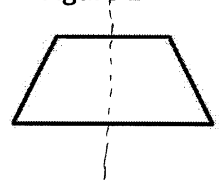Figure A   Figure B   Figure C   Figure D   Figure E

71) Which figure(s) have at least one pair of parallel sides? B, C & E

72) Which figure(s) have at least one pair of perpendicular sides? A & B

73) Which figure(s) have exactly one pair of parallel sides? E

74) Which figure(s) have exactly one line of symmetry? A, D, E

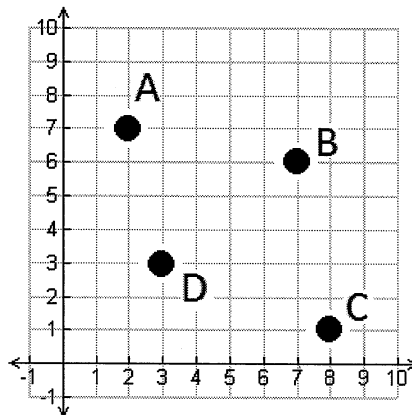75) Which figure(s) have at least two lines of symmetry? B

XXVIII. Write the coordinate of the following points.

76) A (2 , 7)

77) B (7 , 6)

78) C (8 , 1)

79) D (3 , 3)

XXIX. Graph the following points on the coordinate plane and label accordingly.

80) E (3 , 2)

81) F (5 , 1)

82) G (1 , 7)

83) H (6 , 5)