CINCINNATI COUNTRY DAY SCHOOL

MIDDLE SCHOOL

Hello Upcoming 6th Graders,

Enclosed are three units of math problems to help keep your math skills fresh this summer. In preparation for 6-Math, complete one unit each month this summer (June, July, August).

- For every problem, please SYWN (show your work neatly). Write every step to explain your process to solve each problem. Use scrap paper if necessary.
- Complete at least 3 of the brain teaser problems (at the end of the packet)
- All answers are to be written on the enclosed answer sheet.
- A parent is to sign and date your work at the completion of each unit.
- Your summer math packet is due the first day of school.
- You should NOT be using a calculator for this packet!

Good luck and have a great summer!

Sixth Grade Summer Math
Unit 1 – June

Solve each problem. Please SYWN (show your work neatly). Write every step to explain your process to solve each problem. Use scrap paper if necessary. All answers are to be written on the enclosed answer sheet. A parent is to sign and date your work at the completion of each unit. Your summer math packet is due the first day of school.

1.) Find the sum: 729.46 + 83.6 +47 + 9.835

2.) Find the difference of 403.5 and 64.7632

3.) Find the product of 52.95 and .63

4.) Find the quotient of 11.9 ÷ 0.14

5.) Express each fraction as a decimal

$\frac{7}{8}$ $\frac{5}{6}$ $\frac{1}{3}$ $\frac{9}{16}$

6.) Order the decimals from least to greatest:

.45 .415 .4 .495 .405

7.) Find the average of the following: 56, 47, 62, 51

8.) Express as a fraction or mixed number in simplest form: 82.075

9.) Find the perimeter of a rectangle whose length is 50 yds and width is 35 yds.

10.) What is the least common multiple of 18 and 24?
What is the greatest common factor of 18 and 24?

#11-14 Solve each and express the answer in simplest form:

11.) $15\frac{4}{5} - 6\frac{2}{5} =$

12.) $9\frac{3}{7} + 2\frac{2}{3} =$

13.) $10\frac{1}{2} \; x \; 1\frac{3}{7} =$

14.) $3\frac{2}{6} \; x \; \frac{1}{8} =$

15.) Find the product of the largest prime number less than 20 and five to the third power.

16.) The Scrumptious Chocolate Factory sells three times as many Mints as it sells Almond Bars. It sells half as many Almond Bars as Caramels. If it sells 3,750 cases of Mints each month, how many Caramels does it sell in one month?

17.) Mrs. Langenbahn is putting together a puzzle of a map of the world. She wants to work the puzzle on a table. If the finished puzzle is 56 inches long and 36 inches wide, what is the area of the completed puzzle?

#18-21 Solve. Be sure to show all of your process

18.) $236 - 86.276 =$

19.) $.0867 \times 4.9 =$

20.) $1.9565 \div 65 =$

21.) $32.6 \div 8 =$

22.) Jim's high score on a video game was 326,700. Jack's high score was 418,200. Roberta just played the game and her high score was halfway between Jim's and Jack's. What was Roberta's score?

23.) Order these fraction from least to greatest:

$\frac{1}{2}$ $\frac{1}{3}$ $\frac{3}{4}$ $\frac{1}{6}$ $\frac{7}{12}$ $\frac{5}{6}$ $\frac{5}{12}$ $\frac{2}{3}$

24.) Round the following to the nearest hundredth:
4.9815 19.1962 3.401

25.) Round to the ten-millions place: 8,936,502,184

26.) Write the next four numbers in the following pattern:
1, 4, 9, 16, 25, ____, ____, ____, ____

#27-30 Solve for each and express answer in simplest form.

27.) $6\frac{8}{9} + 5\frac{4}{6} =$

28.) $11\frac{1}{6} - 5\frac{2}{3} =$

29.) $9 - 3\frac{8}{20} =$

30.) $\frac{11}{16} \; x \; \frac{21}{25} \; x \; \frac{4}{7} =$

31.) Susan, Andrea and Carla went to the mall shopping one day. Susan spent $46.25. Andrea spent $12.50 more than Carla, who spent $7.85 less than Susan. How much did the three girls spend in ALL?

32.) Sandy makes necklaces out of beads. The beads cost $.14 each. Sandy has $8 to spend. How many beads can she buy?

33.) What is the area of a triangle whose base is 36 cm and height is 28 cm?

34.) What is $\frac{3}{8}$ of 96?

35.) How many factor pairs are there for 300?

Sixth Grade Summer Math
Unit 2 – July

Solve each problem. Please SYWN (show your work neatly). Write every step to explain your process to solve each problem. Use scrap paper if necessary. All answers are to be written on the enclosed answer sheet. A parent is to sign and date your work at the completion of each unit. Your summer math packet is due the first day of school.

1.) Find the sum: 394 + 23.48 + 765.0873

2.) Find the difference of 873.4 and 96.072

3.) Find the product of 419.5 and .073

4.) Find the quotient of .16 ÷ .025

5.) What is the value of six to the fourth power?

6.) Round this number to the nearest ten-thousandths: 367,893.458048

7.) Order the decimals from least to greatest:

8.407 8.047 8.470 8.074 8.0477

8.) Katie can walk 12 blocks in five minutes. If each block is 45 feet long, how many feet will she walk during a 30 minute walk?

9.) Write in numerical form:

Sixty-nine billion, four hundred three thousand, twenty-two and five hundred three hundred-thousandths

10.) Mrs. Kilgor's class read for a total of 450 hours one month. Mrs. Lane's class read two-thirds the number of hours read by Mrs. Kilgor's class. Mr. Thomas' class read twice the number of hours read by Mrs. Lane's class. If there were a total of 90 students in the three classes, what was the average number of hours read by each student?

11.) What is the perimeter of a rectangle with a length of 34.75 inches and a width of 48.329 inches?

12.) What is the area of a rectangle which is 26.5 feet wide and 36.2 feet long?

#13-16 Solve for each and express answer in simplest form.

13.) $4\frac{1}{6} - 2\frac{3}{9} =$

14.) $7\frac{3}{4} + 8\frac{3}{20} =$

15.) $9\frac{3}{5} \times 1\frac{7}{8} =$

16.) $2\frac{7}{10} \times 4\frac{4}{9} =$

17.) A donkey travels at an average speed of 2.5 miles per hour. How long will it take the donkey to travel 32.5 miles?

18.) A package of M&M's cost $.69. Bill has $6.00. How many packages of M&M's can Bill buy?

19.) Andrew's car traveled 489 miles during the first day of his trip. During the second day, he traveled only 377 miles. If the car averaged 419 miles over the first three days, how far did he travel on the third day?

#20-23 Solve. Be sure to show all of your process!

20.) 451.77 + 34.6 +87 + 9.38 =

21.) 5,000 – 678.894 =

22.) 6.306 x 72.4 =

23.) 119 ÷ 3.5 =

24.) What is $\frac{3}{8}$ of 240?

25.) Tom's family collected aluminum cans to recycle. They found out that they would get two cents for every three cans collected. If they collected 2,187 cans, how much money did they receive?

26.) What is the length of a rectangle with a perimeter of 90 ft. and a width of 15 feet?

27.) Order the following from least to greatest:

$$\frac{3}{4} \quad \frac{2}{5} \quad \frac{9}{10} \quad \frac{1}{2} \quad \frac{3}{10} \quad \frac{1}{4} \quad \frac{1}{5} \quad \frac{7}{10} \quad \frac{3}{5}$$

#28-31 Solve each and express the answer in simplest form:

28.) $9\frac{1}{10} - 3\frac{1}{2} =$

29.) $\frac{9}{12} \times \frac{14}{16} \times \frac{20}{21} =$

30.) $6\frac{2}{5} + 5\frac{3}{4} =$

31.) $5 \times 4\frac{1}{3} =$

32.) Convert the fractions to decimals:

$$\frac{7}{100} \qquad \frac{9}{5} \qquad \frac{13}{25} \qquad \frac{19}{1000}$$

33.) Music world is having a huge sale. Everything in the store is half price. Seth wants to buy three CD's that were originally $14.98, $12.96 and $13.00. What will be Seth's total?

34.) A piano produces .440 watts of energy. This is 8 times as much sound as a flute. How much energy does a flute produce?

35.) How many factor pairs are there for 900?

Sixth Grade Summer Math
Unit 3 – August

Solve each problem. Please SYWN (show your work neatly). Write every step to explain your process to solve each problem. Use scrap paper if necessary. All answers are to be written on the enclosed answer sheet. A parent is to sign and date your work at the completion of each unit. Your summer math packet is due the first day of school.

1.) Find the sum: 3,847 + 962 + 42.769

2.) Find the difference of 46.1 and 0.79

3.) Find the product of 740 and .085

4.) Find the quotient of 0.2528 ÷ 0.79

5.) What is the value of five to the fifth power?

6.) If 2 plums cost $.28, how much do 14 plums cost?

7.) Order the decimals from least to greatest:

12.3 12.34 12.22 12.99 12.2999

8.) If 15 oranges cost $4.50, how much do 7 oranges cost?

9.) Write the following decimals as fractions in simplest form:

0.34 0.205 0.058 0.005

10.) Michele bought a two notebooks for $1.34 each, 5 folders for $0.28 each and a pack of 8 pencils for $1.49. How much did Michele spend in all?

11.) Danny breaks a window in his house which costs $130. If he makes $6.50 an hour at his job where he works for 4 hours a day, how many days will he have to work to pay for the window?

12.) Find the average of the following number. Round the answer to the nearest hundredth:

45.98 119.3 87.067 64.783 73.9

#13-16 Solve for each and express answer in simplest form.

13.) $14\frac{10}{15} - 3\frac{4}{9} =$

14.) $9\frac{1}{3} - 2\frac{2}{7} =$

15.) $7\frac{9}{10} + 6\frac{1}{2} =$

16.) $6\frac{2}{5} \ x \ 3\frac{1}{2} =$

17.) What are the next three numbers in the pattern:

8, 24, 12, 36, 18, ___, ____, ____

18.) A CCDS van is 45 feet long and 9 feet wide. The maintenance crew wants to paint two white stripes around the outside of the van. What will be the total length of the two stripes?

19.) The area of a rectangle is 240 square feet. The length of the rectangle is 48 feet. What is the width of the rectangle?

#20-23 Solve. Be sure to show all of your process!

20.) 5,040 – 3,625.87 =

21.) 69.47 x 37.6 =

22.) 2.565 ÷ .27 =

23.) .9614 ÷ 23 =

24.) Alexis reads $3\frac{1}{2}$ books a week. How many books does she read in 7 weeks?

25.) A square has the area of 225 square feet. What is the length of a side of the square?

26.) A square measures 14 inches on one side. A parallelogram has a base of 18 inches and a height of 10 inches. Which figure has a greater area?

27.) A punch recipe calls for $2\frac{1}{2}$ quarts of orange juice. William needs to make 5 times as much punch for a banquet. How many **gallons** of orange juice does he need?

#28-31 Solve each and express the answer in simplest form:

28.) $2\frac{3}{7} + 5\frac{1}{14} =$

29.) $6\frac{5}{8} - 3\frac{5}{6} =$

30.) $10\frac{5}{12} - 8\frac{3}{4} =$

31.) $2\frac{2}{3} \; x \; 5\frac{2}{8} =$

32.) Convert the fractions to decimals:

$$\frac{5}{8} \qquad \frac{7}{30} \qquad \frac{2}{11} \qquad \frac{19}{50}$$

33.) The charge for shipping one box of lined paper is $5.29. How much would it cost to ship 38 boxes?

34.) Carly was scheduled to leave on a vacation when a wind storm came through and cancelled three-fourths of the flights out of the airport. There were 496 flights scheduled for that day. How many flights were able to leave the airport?

35.) How many factor pairs are there for 89?

"Brain Teaser" Problems

Solve the problems by showing your process. The problems involve the strategies used in 5th grade like "Guess, Check, and Revise," "Making a Systematic List," "Looking for the Pattern," "Using a Matrix," and "Making a Table." Do at least 3 problems. Be sure to show your PROCESS and show as much work as possible. You may explain your process with words, as well.

1. A number has to satisfy all three of the following conditions:
    a. It is a composite number between 62 and 72
    b. The sum of the digits is a prime number
    c. It has more than four factors

    What is the number?
2. Look at the following mathematical expression:

$$12^{100}$$

You don't need to find the value of the final product, but what digit will be in the "ones" place of the final product? Why? Show your processing and reasoning.

Hint: Figure out the value of 12 as the base number for "smaller" values and look for patterns.

If you can, figure out the value of 12^{10}

3. The following 4-digit numbers each have one number that has been replaced with a letter.
    a. 122P is a perfect square
    b. 694R is a multiple of 10
    c. 948M is a multiple of 9

    What is the value of the number **PRM**?

4. The Math Club is having a party today. Gina, the club's president, has left notes in all the members' lockers. The notes say:
    "The party is after school in the following room: number of days in a Leap Year, divided by the average of 1, 1, 5, 8, 10, and 11, minus the number of possible three-card hands you can deal with six cards. I'm bringing a cake! See you there."

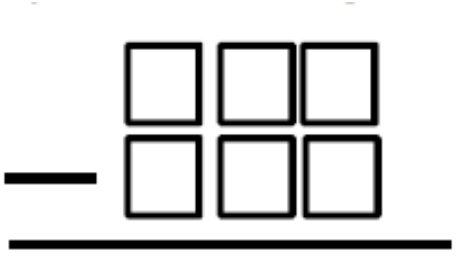
    What room is the party in? You will need to make a systematic list to figure out all the ways to deal a hand of 3 cards using 6 different cards.
5. Somebody found a way to write the number 10 using only 9's.
    9+(9-9)= 10
    Find 5 other ways using brackets, etc.

6. The Lakeside School 5th and 6th graders are selling snacks at a booth to raise money. Students purchasing snacks have been asked to bring in exactly two $1 bills. At this booth, people will each buy two different items from the menu below. The student sellers want to have the right amount of change ready, using the least number of coins for each sale. The student sellers figured out all of the possible combinations of 2 different items, the total cost, the amount of change from $2, and the distribution of coins for each sale.

How many different combinations of quarters, dimes, and nickels would they need to make change? What are they?

Student Sellers:
Chips .55
Juice .65
Cookies (2 pack) .70
Cupcakes .80
Soda .85
Yogurt .60

7. Here are 6 numbers to use to fill in the operation below: 0,2, 3, 5, 8, 9. The numbers can only be used once each and the "O" cannot be placed in the hundreds place.
How can you fill in this 3-digit subtraction so you get the greatest difference possible?



8. Cory wants to us as many different combinations of stamps to total S 0.55 as possible. Each envelope has room for no more than 5 stamps. Here is the selection of different stamps that he will use:

 52-cent

 32-cent

 23-cent

 20-cent

 15-cent

 3-cent

How many different stamp combinations can Cory use on his envelopes?

9. Sandra has left her home in Dallas, Texas to visit the planet Godan. At a party in her donor, there are 17 Godanians. The natives of Godan are born with 4 purple-and-goldstriped wings, 4 purple legs, and 3 red eyes. After the age of 60, they grow another 2 legs, 4 more wings, and 1 more eye. The really old Godanians (over 100 years old) have 5 eyes, but lose 2 wings

At Sandra's party, there are:
. 7 Godanians under 60
. 8 Godanians between 60 and 100
. 2Godamansover 100

How many legs, wings, and eyes are present at the party?

Summer Math Answer Sheet

Name_____

_

June

1. _____
2. _____
3. _____
4. _____
5. 7/8= _____

   5/6=_____

   1/3_____

   9/16_____
6. _____
7. _____
8. _____
9. _____
10. LCM_____GCF_____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____ _____ _____
25. _____
26. ____ ____ ____ ____
27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____

Parent _____

July

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
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16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. 7/100_____

9/5_____

13/25_____

19/1000_____
33. _____
34. _____
35. _____

Parent _____

August

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. 0.34=_____

0.205=_____
0.058=_____
0.005=_____

10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. ____,_____,____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. 5/8=_____

7/30=_____

2/11=_____

19/50=_____

33. _____
34. _____
35. _____

Parent _____

Brain Teasers

1. _____

2. _____

3. _____

4. _____

5. _____

_____

_____

_____

_____

6. _____

7.

8. _____

9. Legs_____

Wings_____

Eyes_____

Parent _____