



# SHADY SIDE

---

## A C A D E M Y

JUNIOR SCHOOL  
400 South Braddock Avenue  
Pittsburgh, PA 15221  
412-473-4400

June, 2019

Dear Parents,

Congratulations to your child for completing a full year of math learning! The purpose of this packet is to help students maintain the math skills acquired during the year and to avoid the “summer slump”. We encourage the students to complete the packet at any pace that is comfortable. While the completion of this packet is not required, it is strongly suggested. We suggest that your child space the problems in the packet out over the 12 weeks of summer for optimal review and reinforcement.

Please encourage your child to devise a personal schedule that is appropriate to sustain his or her learning and practice. It is our hope that students continue to embrace and enjoy the process of mathematics even in the summer months. After each section, please review your child’s answers and check for accuracy against the key found on The Junior School website. Doing so will determine areas that may need further purposeful practice.

Please have your child bring the packet to school on the first day of school.

Have a fun summer and see you in the fall!

Sincerely,

Third Grade Teachers

## HELPFUL HINTS:

### **Steps to solving Bar Model problems:**

1. Reread the problem
2. Decide who
3. Decide what
4. Draw initial bar
5. Reread and adjust bars
6. Decide question mark
7. Work the computation
8. Write the answer in a complete sentence

### **Tips for Addition Problems:**

- With addition problems, it's helpful to draw the unit bars on the smaller side so you can add to them as you adjust the units.

### **Tips for Subtraction Problems:**

- Most subtraction problems require you to draw a longer unit bar to begin.
- It's really helpful to identify the segment of the unit you're subtracting and draw a diagonal slash through the value. This is a great visual reminder.
- We usually place numerical values outside the unit bars with subtraction because we manipulate the inside of the units with sections and slashes.

## VOCABULARY:

**digit** – A number is made up of digits. In the number 2,478 the digits are 2, 4, 7 and 8.

**standard form** – When a number is written with digits – 2,478 is the standard form of the number 2,478.

**word form** – When a number is written with words – two thousand, four hundred and seventy-eight is the word form for 2,478.

**expanded form** – When a number is written with expanded place value –  $2,000 + 400 + 70 + 8$  is the expanded form of 2,478.

**rounded** – 2,478 is 2,500 when rounded to the nearest hundred.

**estimate** – A number close to the exact number.

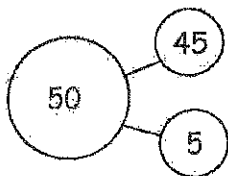
**reasonable** – An estimated answer is reasonable when it is close to the actual answer.

**overestimate** – An estimated answer that is greater than the actual sum.

**leading digit** – The digit in a given number with the greatest place value.

**front-end estimation** – Estimation that uses the leading digits to estimate the sum and difference.

**number bond** – A form of expressing a given number as a whole and two parts.



**sum** – The answer in an addition problem.

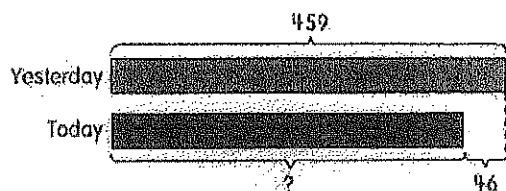
**difference** – The answer in a subtraction problem.

**product** – The answer in a multiplication problem.

**quotient** – The answer in a division problem.

**regroup** – To use place value to change 10 ones into 1 ten, 10 tens into 1 hundred, 10 hundreds into 1 thousand, and so on.

**bar model** – a model made of horizontal bars used to represent parts and wholes in a problem.



**commutative property of multiplication** – Changing the order of the factors in a multiplication sentence does not change the answer.

**associative property of multiplication** – Changing the way the factors are *grouped* in a multiplication sentence does not change the answer.

**multiplicative property of one** – Any number multiplied by 1 equals that number.

**multiplicative property of zero** – Any number multiplied by 0 equals 0.

**array model** – symbols arranged in rows in columns.

**area model** – identical small squares arranged in a grid.

**remainder** – A remainder is the number left over when a number cannot be divided equally.

Section 1:

Express number in word form:

1. 6,257 \_\_\_\_\_
2. 8,540 \_\_\_\_\_
3. 7,601 \_\_\_\_\_

Add. Use mental math.

4.  $28 + 56 =$  \_\_\_\_\_
5.  $34 + 49 =$  \_\_\_\_\_
6.  $17 + 67 =$  \_\_\_\_\_
7.  $58 - 47 =$  \_\_\_\_\_
8.  $155 - 53 =$  \_\_\_\_\_

Express number in expanded form:

9. 9,304 \_\_\_\_\_
10. 3,052 \_\_\_\_\_
11. 1,643 \_\_\_\_\_

Order the numbers from least to greatest.

12. 9,143                      9,034                      9,134  
\_\_\_\_\_
13. 3,256                      3,279                      3,238  
\_\_\_\_\_
14. 7,425                      7,429                      7,420  
\_\_\_\_\_

Find each missing number.

15. 10 more than 2,863 is \_\_\_\_\_.

16. 100 more than 829 is \_\_\_\_\_.

17. 1,000 less than 4,059 is \_\_\_\_\_.

Complete each number pattern.

18. 8,625      8,725      \_\_\_\_\_      \_\_\_\_\_      9,025

19. 862      962      \_\_\_\_\_      1,162      \_\_\_\_\_

20. 6,215      \_\_\_\_\_      6,015      \_\_\_\_\_      \_\_\_\_\_

Solve.

21. A grocer sells 548 apples and 470 oranges.  
Estimate the number of fruits he sells altogether.

22. Circle the mystery number. Use the clues to help you.

**118      96      61      47      54**

Clue 1: The digits in the number add up to a number greater than 10.

Clue 2: If I count in steps of 2, I will get this number.

Section 2:

Subtract. Use mental math.

1.  $94 - 32 =$  \_\_\_\_\_

2.  $78 - 53 =$  \_\_\_\_\_

3.  $72 + 25 =$  \_\_\_\_\_

4.  $65 + 38 =$  \_\_\_\_\_

5.  $51 - 19 =$  \_\_\_\_\_

Express number in standard form:

6. eight thousand, six hundred twenty-nine \_\_\_\_\_

7. four thousand, seven hundred thirty \_\_\_\_\_

8. seven thousand, ten \_\_\_\_\_

Solve.

9.  $52 \times 6 =$  \_\_\_\_\_

10.  $113 \times 3 =$  \_\_\_\_\_

11.  $21 \times 7 =$  \_\_\_\_\_

Complete by rounding each value to nearest ten and hundred.

	<u>value</u>	<u>nearest ten</u>	<u>nearest hundred</u>
--	--------------	--------------------	------------------------

12. 139

13. 658

14. 1,099

15. What number is 500 less than 6,125? answer \_\_\_\_\_

16. Jesse bought a toy for \$28.  
She paid \$19 more for a model car than she paid for the toy.  
How much did Jesse pay in all?  
a. \$47      b. \$57      c. \$65      d. \$75

17. What is the smallest four digit number that can be formed with  
the digits 3, 8, 0, 7?      answer \_\_\_\_\_

Solve. Draw a bar model to help.

18. Meena, Fiona and Jacob share a total of 320 seashells.  
Fiona gets 140 seashells.  
Meena gets 90 seashells.  
How many seashells does Jacob get?
19. Mrs. Johnson buys 68 posts and some wire to make a fence. Each post costs  
\$7. The wire costs \$46. How much does Mrs. Johnson pay for the posts and the  
wire?



Section 3:

Solve.

1.  $635 + 249 =$  \_\_\_\_\_

2.  $508 + 271 =$  \_\_\_\_\_

3. The sum of 3,684 and 2,700 is \_\_\_\_\_.

Solve. Show your work and use bar models to help.

4. Mrs. Tan buys a duck and a chicken. The mass of the duck is 2,300 grams. The mass of the chicken is 1,675 grams. How much heavier is the duck than the chicken?

5. At Hillside Elementary School, there are 1,253 boys and 1,624 girls. How many students are there at the school?

6. Complete the number pattern.

30    80    180    330    \_\_\_\_\_

7. I am a 3-digit number that is less than 500.

My ones digit is twice the hundreds digit.

The sum of the three digits is 14.

What number am I?

Answer: \_\_\_\_\_

8.  $45 + 5 = \underline{\quad} - 100$ . The missing number is \_\_\_\_\_.

- a. 30    b. 70    c. 130    d. 150

9. In the number 8,296 what is the value of the digit 2?

Answer: \_\_\_\_\_

10. Subtract 989 from the sum of 1,857 and 2,465.

Answer: \_\_\_\_\_

Solve. Show your work and use bar models to help.

11. Allison jogs 3,860 meters and Calvin jogs 5,470 meters.  
How far do they jog altogether?

Solve. Show your work.

12. Marbles per bag:

<u>Bag A:</u>	<u>Bag B:</u>	<u>Bag C:</u>	<u>Bag D:</u>	<u>Bag E:</u>
1,138	2,786	1,412	4,354	5,588

Jane takes Bag B and Bag D.

Karen takes Bag E.

a. Who has more marbles?

b. How many more marbles does she have?

Solve.

13. Add 2,659 to 784. The sum is \_\_\_\_\_ more than 555.

- b. 2,878      b. 2,888      c. 2,988      d. 3,988

14. 2,573

+ 1,989

15. When you \_\_\_\_\_ 23 ones, you get 2 tens and \_\_\_\_\_ ones.

Section 4:

Multiply mentally.

1.  $4 \times 30 =$  \_\_\_\_\_

2.  $9 \times 200 =$  \_\_\_\_\_

3.  $8 \times 8 =$  \_\_\_\_\_

4.  $5 \times 8 =$  \_\_\_\_\_

5.  $7 \times 70 =$  \_\_\_\_\_

6.  $9 \times 9 =$  \_\_\_\_\_

Solve. Show your work and use bar models to help.

7. A refrigerator costs 5 times as much as a television. The television costs \$429. What is the cost of the refrigerator?

8. The students in class 3A buy 500 packets of seeds to start an eco-garden. On Monday, they use 27 packets of seeds. On Tuesday, they use twice as many packets as on Monday. How many packets of seeds do the students have left?

9. A store records the sales of its toys in the table below.

MONTH	NUMBER OF TOYS SOLD
January	180
February	90 more than in January
March	3 times as many as in February
April	320 fewer than in March

a. How many toys are sold in February?

b. \_\_\_\_\_  
How many toys are sold in March?

c. \_\_\_\_\_  
How many toys are sold in April?

d. \_\_\_\_\_  
How many toys are sold altogether during the four months?

\_\_\_\_\_

10.     358  
      x 2

11.     152  
      x 6

12.     126  
      x 7

Solve. Show your work and use bar models to help.

13. Sophia prepares 38 cheese sandwiches and 46 tuna sandwiches. She puts the sandwiches equally onto 3 platters. How many sandwiches are on each platter?

14. Maria has \$500. She buys a pair of shoes for \$108. She gives the rest of the money to her 4 nieces. Her nieces share the money equally.

a. How much money does Maria give to her 4 nieces?

b. How much does each niece get?

15. In 5,786 the digit 5 has the same value as \_\_\_\_\_.

a.  $5 \times 1$       b.  $5 \times 10$       c.  $5 \times 100$       d.  $5 \times 1,000$

16. What is the product of 346 and 9?

a.  $300 + 14$

b.  $3,000 + 14$

c.  $300 + 100 + 4$

d.  $3,000 + 100 + 14$

17. Divide 87 by 6. The remainder is \_\_\_\_\_.

a. 2

b. 3

c. 4

d. 5

18. Find the greatest product of a 3-digit number and a 1-digit number using each digit below only once. (3 5 6 7)

x			

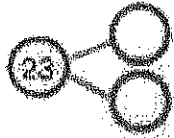
Section 5:

Solve.

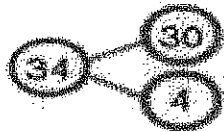
1. Sally and Joshua have the same amount of money.  
Joshua pays \$9.10 for a bag and has \$16.25 left.  
Sally buys a pen and has \$19.60 left.  
How much does the pen cost?
  
2. Isaac buys a block of cheese for \$5.70, a bottle of olive oil for \$11.25, and a package of frozen chicken wings for \$18.99.  
Isaac gives the cashier three \$10 bills, two \$5 bills, and four \$1 bills. How much change will Isaac get in return?
  
3. Mr. Lim buys a sweater, a handbag, and a watch.  
The sweater costs \$108.90.  
The handbag costs \$60.30 less than the sweater.  
The watch costs \$50.50 more than the sweater.  
Mr. Lim receives \$33.10 in change.  
How much did Mr. Lim pay the cashier?

Add or subtract mentally. Use number bonds to help you.

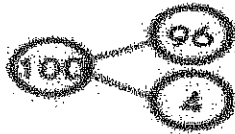
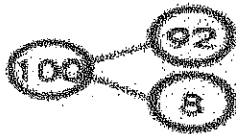
4. Find  $45 + 23$ .



5. Find  $87 - 34$ .



6. Find  $92 + 96$ .





Solve. Use bar models to help you.

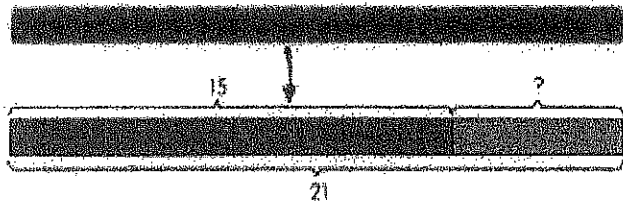
7. Helen puts 14 bread sticks in a basket. Her friend puts 17 breadsticks in the basket. How many breadsticks are in the basket?



$$\text{[ ]} + \text{[ ]} = \text{[ ]}$$

There are [ ] breadsticks in the basket.

8. The third grade class has a new aquarium. There are 21 fish in it. 15 fish were given by families. The rest were bought by the school. How many were bought by the school?



9. There are 147 fish in a pond. 49 of them are black.  
The rest are orange. How many are orange?

Solve:

10.

$$\begin{array}{r} \text{■} \text{■} \text{■} \\ 4 \overline{) 48} \\ \underline{\text{■} \text{■}} \\ \text{■} \\ \underline{\text{■}} \\ \text{■} \end{array}$$

11.

$$\begin{array}{r} \text{■} \text{■} \\ 2 \overline{) 64} \end{array}$$

12.

$$\begin{array}{r} \text{■} \text{■} \\ 4 \overline{) 56} \\ \underline{\text{■} \text{■}} \\ \text{■} \text{■} \\ \underline{\text{■} \text{■}} \\ \text{■} \end{array}$$

13.  $86 \div 2 =$

14.  $38 \div 2 =$

15.  $75 \div 4 =$

Section 6:

Solve. Show your work.

1. Maria has 48 pencils. She gives the same number of pencils to each of her friends, and she has 3 pencils left. Each friend gets 9 pencils. How many friends are there?

Round each number to the nearest hundred.

2. 340 \_\_\_\_\_

3. 882 \_\_\_\_\_

4. 550 \_\_\_\_\_

Round each number to the nearest ten.

5. 22 \_\_\_\_\_

6. 99 \_\_\_\_\_

7. 150 \_\_\_\_\_

Divide:

8.  $72 \div 6 =$  \_\_\_\_\_

9.  $49 \div 7 =$  \_\_\_\_\_

10.  $64 \div 8 =$  \_\_\_\_\_

Add or subtract using mental math.

11.  $99 + 42$  \_\_\_\_\_

12.  $198 - 97$  \_\_\_\_\_

13.  $49 + 51$  \_\_\_\_\_

Divide to solve.

14. Three friends share 56 cards equally. How many cards does each child get? How many cards are left over?

15. Timothy packs 60 bottles of orange juice equally into four containers. How many bottles are in each container?

Section 7:

Subtract:

$$\begin{array}{r} 1. \quad \$37.65 \\ - \$16.03 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \$85.00 \\ - \$21.60 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad \$36.78 \\ - \$14.95 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad \$70.00 \\ - \$28.20 \\ \hline \end{array}$$

Divide to solve.

5. Paul has 58 bicycles in his shop.  
He arranges them in 5 equal rows.
- How many are in each row?
  - How many are left over?

Estimate first, then solve.

6. A tennis club orders 715 tennis balls. After some matches, 318 are worn out. The remaining matches will use 415 balls. Does the club have enough balls for the remaining matches?

7. The drama club has \$416 to spend on the next play. Costumes cost \$185.00. Make up costs \$176.00. What is the total cost of costumes and make up? How much money is left over after buying the two items?

8. Rick has \$99.00. He saves another \$46.00. How much money does he have now?

Use multiplication to solve.

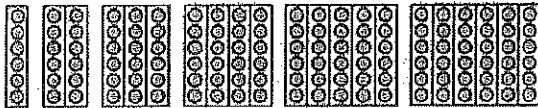
9. Mr. Brown has 9 mirrors.  
Each mirror has 9 sides.  
How many sides do the mirrors have in all?
10. Pencils are given to 4 children.  
Each child has 6 pencils.  
How many pencils do the children have in all?

11. Andi has nine dolls.  
 Each doll costs \$6  
 How much do the nine dolls cost in all?

12.  $4 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \times 4 = 20$

13.  $10 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \times 10 = 90$

14. Look at each array model, then fill in the blanks.



a.  $6 \times \underline{\hspace{2cm}} = 18$     $24 \div \underline{\hspace{2cm}} = 36$

b.  $30 \div 36 = 42 \div \underline{\hspace{2cm}}$

Solve:

15.  $18 = \underline{\hspace{2cm}} \times 6$

16.  $36 = \underline{\hspace{2cm}} \times 6$

17.  $54 = \underline{\hspace{2cm}} \times 6$

Section 8:

Divide mentally. Use related multiplication facts and patterns to help you.

1. Find  $350 \div 5$

$$350 \div 5 = \underline{\quad} \text{ tens} \div 5$$

$$= \underline{\quad} \text{ tens}$$

$$= \underline{\quad}$$

2.  $700 \div 7 = \underline{\quad}$

3.  $560 \div 8 = \underline{\quad}$

4.  $6400 \div 8 = \underline{\quad}$

5.  $7200 \div 9 = \underline{\quad}$

Solve. Draw bar models to help you.

6. A letter carrier delivers 999 letters in two days. The carrier delivers 306 letters on Monday and the rest of the letters on Tuesday. How many letters does the carrier deliver on Tuesday?



Multiply.

7.  $8 \times 2 =$  \_\_\_\_\_

8.  $9 \times 6 =$  \_\_\_\_\_

9.  $6 \times 8 =$  \_\_\_\_\_

10.  $7 \times 5 =$  \_\_\_\_\_

11.  $9 \times 4 =$  \_\_\_\_\_

12.  $7 \times 3 =$  \_\_\_\_\_

Divide.

13. 108 divided by 12 = \_\_\_\_\_

14. 121 divided by 11 = \_\_\_\_\_

15. 75 divided by 5 = \_\_\_\_\_

Section 9:

Fill in the blanks.

1. 5,600 is \_\_\_\_\_ more than 4,580.
2. 7,203 is 100 more than \_\_\_\_\_.
3. The difference between 654 and 1,000 is \_\_\_\_\_.
4.  $3,000 + \underline{\hspace{2cm}} + 25 = 3,425$ .
5. The sum of 4,681 and 500 is \_\_\_\_\_.
6. 5,642 in expanded form is:  
\_\_\_\_\_.
7. In 1,863, the digit \_\_\_\_\_ is in the tens place, and its value is \_\_\_\_\_.
8. When 349 is divided by 5, the quotient is \_\_\_\_\_ and the remainder is \_\_\_\_\_.
9. Complete the number pattern. 5,576, 5,676, 5,776, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.
10. Which of the following is the best estimate for the value of  $386 \times 8$ ?

863    6,300    3,500    3,200

11.  $\star + \star + \star = 27$

$\text{C} + \text{C} + \text{C} + \text{C} = 32$ .

Find the value of:

$\star \times \text{C} = \underline{\hspace{2cm}}$

12. Solve these problems.

$$\begin{array}{r} 149 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 450 \\ \times 5 \\ \hline \end{array}$$

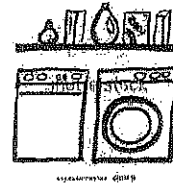
$$\begin{array}{r} 402 \\ \times 8 \\ \hline \end{array}$$

13. There are 48 cows on the farm. There are 4 times as many cows as pigs. How many more cows are there than pigs?



14. Mr. Ling earns \$3,200 a month. He spends \$475 on food, \$1,500 on other things, and saves the rest. How much does he save in a month?

15. The washer costs \$1,367. The dryer is \$421 less than the washer. Louise bought the washer and the dryer. How much did she pay?



16.

Round 5,230 to the nearest 1,000. \_\_\_\_\_

Round 7,986 to the nearest 100. \_\_\_\_\_

Round 6,675 to the nearest 10. \_\_\_\_\_

Section 10:

Solve.

1.  $\begin{array}{r} \$3.20 \\ +\$4.75 \\ \hline \end{array}$

2.  $\begin{array}{r} \$4.65 \\ +\$5.33 \\ \hline \end{array}$

3.  $\$8.65 - \$4.00 = \underline{\hspace{2cm}}$

4.  $\$9.70 - \$0.60 = \underline{\hspace{2cm}}$

5. Place the following digits in the boxes so that the sum of the 3-digit numbers is 999. Use each digit only once.

1    2    3    4    5    6    7    8    9

9	9	9

6. What is the missing number?

$\underline{\hspace{2cm}} \rightarrow \text{subtract } 18 \rightarrow \text{multiply } 3 = 87$

7. Complete the following number pattern.

1, 2, 3, 5, 8, 13, 21, \_\_\_\_\_, \_\_\_\_\_

8. Circle the number that has the digit 7 in the thousands place value.

a. 6,970    b. 7,906    c. 9,607    d. 9,760

9. Jane has \$298. Linda has \$47 more than Jane.

How much do they have in all?

- a. \$251      b. \$345      c. \$549      d. \$643

10. 30 tens is \_\_\_\_\_ more than 49 fives.

- a. 19      b. 55      c. 75      d. 251

11. Ian buys some magazines for \$8 each. He gives the cashier \$100 and receives \$4 change. How many magazines does Ian buy?

- a. 8      b. 9      c. 11      d. 12

12. I divide a number by 3 and subtract 85 from the quotient to make 190.

What is the number?

- a. 35      b. 92      c. 315      d. 825

13. Multiply 124 and 8.

answer: \_\_\_\_\_

14. The sum of two numbers is 300. One number is 206 more than the other number. What is the value of the smaller number?

answer: \_\_\_\_\_