

Sandia Prep
Summer Math Packet for Incoming Sixth Graders

- This packet is designed to help you retain many of those math concepts you learned during your elementary school years.
- Answers to most of the problems are provided on page 15. It's important to receive immediate feedback so you can make sure you're doing the problems correctly.
- ***You don't have to complete this packet all at once!*** Pace yourself over the summer. Here's a suggestion: divide up the problems and work them throughout the summer. For example, you can divide up this packet into five sessions:

Session 1 (perhaps mid - June?)
<ul style="list-style-type: none">➤ Five-Minute Multiplying Frenzy (2 – 3 of them)➤ Vocabulary Crossword Puzzle
Session 2 (perhaps late June?)
<ul style="list-style-type: none">➤ Five-Minute Multiplying Frenzy (2 – 3 of them)➤ Operations with Whole Numbers: Problems 1 – 24
Session 3 (perhaps mid-July?)
<ul style="list-style-type: none">➤ Five-Minute Multiplying Frenzy (2 of them)➤ Operations with Decimals: Problems 25 – 47
Session 4 (perhaps late July?)
<ul style="list-style-type: none">➤ Five-Minute Multiplying Frenzy (2 of them)➤ Operations with Fractions: Problems 48 – 72
Session 5 (perhaps early August?)
<ul style="list-style-type: none">➤ Five – Minute Multiplying Frenzy (the rest of them)➤ 50 – 20 – 10: What Every Middle School Student Should Know

- On page 14 you'll find a set of problems that, as the title suggests, are ***just for fun***. Don't worry if you don't understand all of them! You may find some of them interesting!

Five Minute Multiplying Frenzy

How much of each chart can you complete in five minutes? Set a timer, stop after five minutes, write the number correct out of 100, and write the date. Is there room for improvement as the summer progresses?

×	10	5	9	2	3	6	8	4	11	7
9										
8										
5										
2										
7										
6										
4										
12										
10										
3										

×	8	10	4	3	9	12	2	7	11	6
10										
5										
7										
12										
11										
3										
6										
4										
2										
8										

Time: _____

_____ 100

Time: _____

_____ 100

×	6	3	2	12	8	4	11	5	9	10
2										
12										
4										
6										
9										
7										
5										
10										
11										
3										

×	9	2	10	4	5	6	12	7	8	3
11										
2										
12										
4										
6										
9										
3										
7										
8										
10										

Time: _____

_____ 100

Time: _____

_____ 100

×	4	11	9	3	2	6	5	7	10	12
10										
3										
12										
4										
8										
2										
7										
9										
11										
6										

Time: _____

100

×	5	7	11	9	6	12	4	8	10	2
9										
3										
5										
4										
11										
7										
10										
12										
2										
6										

Time: _____

100

×	4	12	10	3	7	5	6	2	9	11
2										
3										
5										
8										
6										
12										
7										
4										
11										
10										

Time: _____

100

×	6	8	11	9	12	5	4	3	7	2
2										
12										
6										
10										
9										
4										
11										
8										
7										
3										

Time: _____

100

×	8	4	11	9	6	2	3	7	5	10
5										
9										
2										
4										
3										
12										
8										
6										
10										
7										

×	3	2	9	5	12	11	8	10	6	7
8										
6										
3										
12										
10										
11										
9										
7										
5										
4										

Time: _____

100

Time: _____

100

×	4	12	10	3	7	5	6	2	9	11
3										
7										
9										
12										
8										
2										
6										
5										
11										
10										

×	3	7	4	6	12	8	5	9	2	11
3										
9										
5										
11										
8										
2										
12										
6										
4										
10										

Time: _____

100

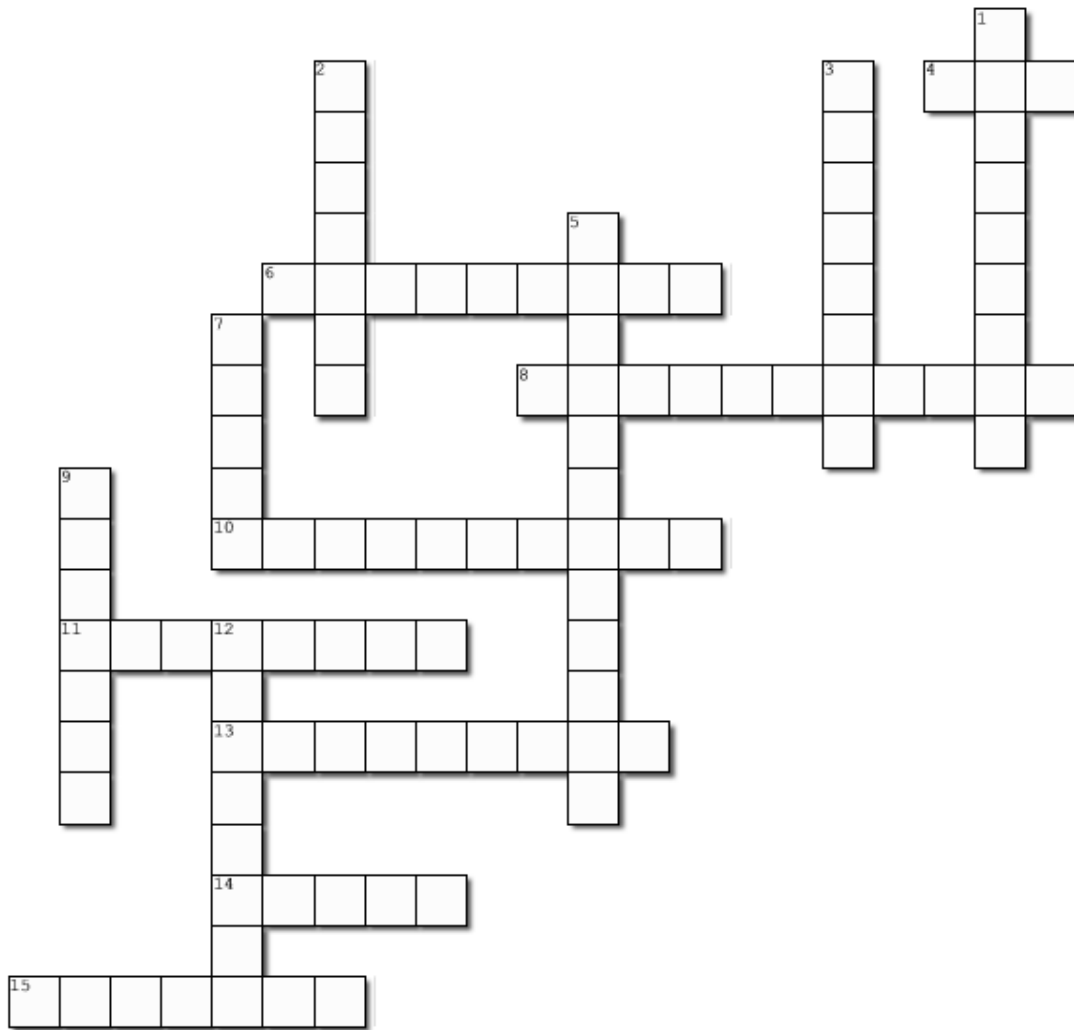
Time: _____

100

Name: _____

Math Vocabulary

Complete the crossword puzzle below



Created using the Crossword Maker on TheTeachersCorner.net

squared sum prime cubed difference improper product dividend numerator quotient denominator

factors composite mixed number perimeter

Across

- the answer to an addition problem
- a number that has factors other than one and itself
- the bottom number in a fraction
- the answer to a subtraction problem
- the number that is divided by another number
- the sum of all the sides of a figure
- a number whose only factors are one and itself
- when a number is raised to the second power x^2

Down

- the top number in a fraction
- numbers that are multiplied together to form the product
- the answer to a division problem
- a whole number and a fraction represented together
- when a number is raised to the third power x^3
- the answer to a multiplication problem
- when the numerator is greater than the denominator in a fraction

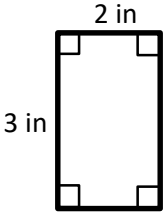
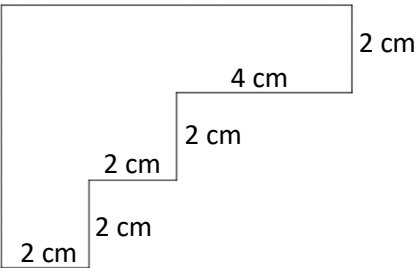


Can you add, subtract, multiply, and divide whole numbers?

#1 – 4: Find each sum.

1	$460 + 408$	2	$222 + 10$
3	$352 + 428$	4	$393 + 485$

#5 – 6: Find the perimeter of each figure. (The perimeter is the sum of all the sides.)

5		6	
----------	--	----------	---

#7 – 10: Find each difference.

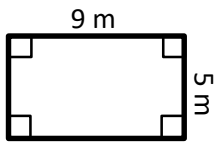
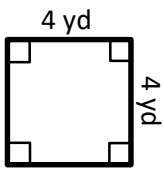
7	$409 - 247$	8	$476 - 91$
9	$495 - 131$	10	$382 - 214$



#11 – 14: Find each product.

11	0×19	12	20×19
13	8×14	14	32×17

#15 – 16: Find the area of each rectangle. $A = l \times w$

15		16	
-----------	---	-----------	---

#17 – 20: Find each quotient.

17	$2548 \div 28$	18	$3717 \div 9$
19	$1880 \div 40$	20	$1596 \div 38$



Order of Operations! PEMDAS

#21 – 24: Evaluate each expression.

21	$6 + 4 - (12 + 8) \div 10$	22	$((25 - 1) \times 2) \div 6$
23	$(12 + 1 + 6 - 9) \div 10$	24	$1 + 4 - 4 + 10 \times 5$

How are your decimals?

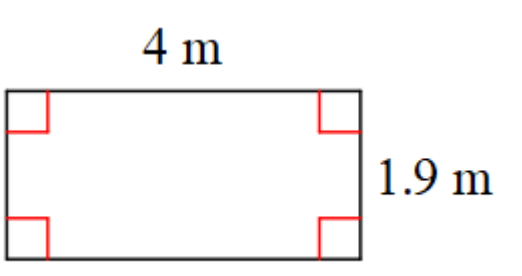
#25 – 30: Round each to the place indicated.

25	6.3631; <i>hundredths</i>	26	3.768906; <i>ten – thousandths</i>
27	1.698704; <i>thousandths</i>	28	6.88872; <i>ten – thousandths</i>
29	1.85; <i>tenths</i>	30	8.8438; <i>tenths</i>

#31 – 34: Find each sum.

31	$0.9 + 4.7$	32	$4.3 + 4.4$
33	$6.8 + 1.4$	34	$1.8 + 3.99$

#35: Find the perimeter of the rectangle. (The perimeter is the sum of all the sides.)

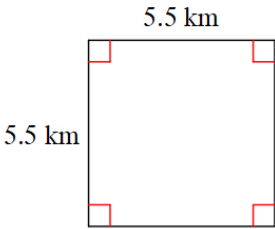
35	
----	---



#36 – 39: Find each difference.

36	$5.015 - 2.4$	37	$3.6 - 2.8$
38	$5.9 - 4.6$	39	$7.9 - 3.4$

#40 – 43: Find each product.

40	8.3×8.3	41	5.4×6
42	3.6×3.8	43	Find the area of the square. 

#44 – 47: Find each quotient.

44	$7.7 \div 2.5$	45	$5.76 \div 3.2$
46	$5.7 \div 5$	47	$7.2 \div 2$

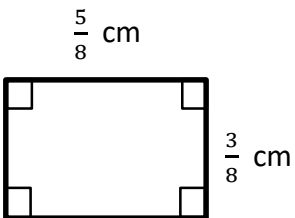


How are your fractions?

#48 – 55: Simplify each fraction. Write your answer as a mixed number when possible.

48	$\frac{4}{8}$	49	$\frac{60}{160}$
50	$\frac{9}{72}$	51	$7\frac{20}{60}$
52	$\frac{20}{16}$	53	$\frac{100}{40}$
54	$\frac{36}{27}$	55	$\frac{42}{36}$

#56 – 60: Find each sum.

56	$\frac{2}{7} + \frac{4}{7}$	57	$\frac{6}{7} + \frac{3}{7}$
58	$\frac{1}{4} + \frac{5}{8}$	59	$\frac{7}{8} + 1\frac{1}{8}$
60	Find the perimeter of the rectangle. 		



#61 – 64: Find each difference.

61	$4\frac{5}{6} - \frac{1}{2}$	62	$4\frac{3}{5} - \frac{1}{3}$
63	$4\frac{7}{8} - \frac{1}{12}$	64	$3\frac{3}{4} - \frac{5}{8}$

#65 – 68: Find each product.

65	$\frac{3}{4} \times \frac{4}{5}$	66	$3\frac{3}{5} \times \frac{15}{2}$
67	$\frac{1}{3} \times \frac{5}{7}$	68	$\frac{1}{2} \times \frac{3}{5} \times \frac{10}{3}$

#69 – 72: Find each quotient.

69	$\frac{16}{9} \div \frac{8}{7}$	70	$\frac{4}{9} \div \frac{1}{2}$
71	$\frac{9}{8} \div \frac{3}{5}$	72	$2\frac{1}{2} \div \frac{5}{2}$



50 / 20 / 10 : What Every Middle School Student Should Know

Explanations and Examples

50: Write all the factor pairs of the whole numbers from 1 to 50.

Here are the factors of 12: 1, 2, 3, 4, 6, 12

Since factors are multiplied to get a product ($factor \times factor = product$), the factors of 12 can be written in pairs:

$$\begin{aligned}
 &1 \times 12 \\
 &2 \times 6 \\
 &3 \times 4
 \end{aligned}$$

Or, more efficiently, they can be written in a table like this:

12	
1	12
2	6
3	4

Other Numbers:

30	
1	30
2	15
3	10
5	6

7	
1	7

Oh yeah—7 is a prime number!

25	
1	25
5	5

20: Write (and ideally memorize) the first twenty square numbers.

$1^2 = 1$	$2^2 = 4$	$3^2 = 9$...
-----------	-----------	-----------	-----

10: Write (and ideally memorize) the first twenty cube numbers.

$1^3 = 1$	$2^3 = 8$	$3^3 = 27$...
-----------	-----------	------------	-----



50 / 20 / 10 What Every Algebra Student Should Know

Factor Pairs: Write the positive factors for each number. Write them in pairs, as demonstrated for the numbers 12 and 13.

1		2		3		4		5		6	
7		8		9		10		11		12	
										1 2 3	12 6 4
13		14		15		16		17		18	
1	13										
19		20		21		22		23		24	
25		26		27		28		29		30	
31		32		33		34		35		36	
37		38		39		40		41		42	
43		44		45		46		47		48	
49						50					

Squares
$1^2 =$
$2^2 =$
$3^2 =$
$4^2 =$
$5^2 =$
$6^2 =$
$7^2 =$
$8^2 =$
$9^2 = 81$
$10^2 =$
$11^2 =$
$12^2 =$
$13^2 =$
$14^2 =$
$15^2 =$
$16^2 =$
$17^2 =$
$18^2 =$
$19^2 =$
$20^2 =$

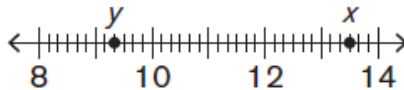
CUBES	$1^3 =$	$2^3 =$	$3^3 =$	$4^3 =$	$5^3 =$ 125	$6^3 =$	$7^3 =$	$8^3 =$	$9^3 =$	$10^3 =$
--------------	---------	---------	---------	---------	----------------	---------	---------	---------	---------	----------


Just for Fun...

Here is a page from the 2018-19 *Mathcounts* handbook. You may find some of these problems interesting! These are *just for fun*.

73 combinations Bob has 40 cents in his pocket. If Bob has no pennies, how many different combinations of quarters, dimes and/or nickels could he have?

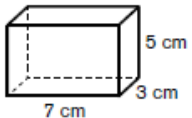
74 _____ On the number line shown, what is the value of $x - y$? Express your answer as a mixed number.



75 _____  Ted flips a coin that is equally likely to land heads up or tails up. Ted flips the coin 10 times, and each time it lands heads up. What is the probability that the next flip will also land heads up? Express your answer as a common fraction.

76 _____ What is the value of $9 + 5 \times 3 - 8 \div 2$?

77 _____ If two more than three times x is equal to five less than ten times x , what is the value of x ?

78 cm³  What is the volume of a rectangular prism of height 5 cm, width 7 cm and depth 3 cm?

79 _____ What is the average of the prime numbers between 20 and 30?

80 lines How many lines of symmetry does an isosceles right triangle have?

81 _____ What is the quotient when 1,000,000,000 is divided by $2^8 \times 5^7$?

82 people Of 1000 people surveyed, one-third of the 630 people who reported owning a cat also own a dog. If each person surveyed owns a cat, a dog or both, how many own a dog?



ANSWERS!

1	868	2	232	3	780	4	878	5	10 in
6	258 cm	7	162	8	385	9	364	10	168
11	0	12	380	13	112	14	544	15	45 cm ²
16	16 yd ²	17	91	18	413	19	47	20	42
21	8	22	8	23	1	24	51	25	6.36
26	3.7689	27	1.699	28	6.8887	29	1.9	30	8.8
31	5.6	32	8.7	33	8.2	34	5.79	35	11.8 m
36	2.615	37	0.8	38	1.3	39	4.5	40	68.89
41	32.4	42	13.68	43	30.25 km ²	44	3.08	45	1.8
46	1.14	47	3.6	48	$\frac{1}{2}$	49	$\frac{3}{8}$	50	$\frac{1}{8}$
51	$7\frac{1}{3}$	52	$1\frac{1}{4}$	53	$2\frac{1}{2}$	54	$1\frac{1}{3}$	55	$1\frac{1}{6}$
56	$\frac{6}{7}$	57	$1\frac{2}{7}$	58	$\frac{7}{8}$	59	2	60	2 cm
61	$4\frac{1}{3}$	62	$4\frac{4}{15}$	63	$4\frac{19}{24}$	64	$3\frac{1}{8}$	65	$\frac{3}{5}$
66	27	67	$\frac{5}{21}$	68	1	69	$1\frac{5}{9}$	70	$\frac{8}{9}$
71	$1\frac{7}{8}$	72	1						

Just for Fun...

73	7	74	$4\frac{1}{6}$	75	$\frac{1}{2}$	76	20	77	1
78	105 cubic cm	79	26	80	1	81	50	82	580