

# Summer Packet

*Algebra 1–2*

*or*

*Algebra 1–2 Block*



# MATH SUMMER PACKET

## INSTRUCTIONS

Attached you will find a packet of exciting math problems for your enjoyment over the summer. The purpose of the summer packet is to review the topics you have already mastered in math and to make sure that you are prepared for the class you are about to enter.

The packet contains a brief summary and explanation of the topics so you don't need to worry if you don't have your math book. You will find many sample problems, which would be great practice for you before you try your own problems. The explanations are divided into sections to match the sample problems so you should be able to reference the examples easily.

This packet is optional; however, it is highly recommended that you do the problems in the packet *before* the school year starts so that you can be sure that you are ready for class when it starts. The answers are provided in the back of the packet. You will have an opportunity to show off your skills during the first week when your class reviews the problems in the packet.

This packet is to help you maximize your previous math courses and to make sure that everyone is starting off on an even playing field on the first day of school. If you feel that you need additional help on one or two topics, you may want to try math websites such as: [www.mathforum.org](http://www.mathforum.org) or [www.askjeeves.com](http://www.askjeeves.com). Math teachers will be available for assistance at the high school the week before school. Check the marquee or the school website for specific times, which are to be determined.

Enjoy your summer and don't forget about the packet. August will be here before you know it! If you lose your packet the OPRFHS Bookstore will carry extra copies. You will also be able to access the packets on line at the school website, [www.oprfhs.org](http://www.oprfhs.org).

See you in August!

**The OPRFHS Math Department**

# Welcome to Algebra One...a year of $f\mu\eta$ !

Are you wondering what your class will be like? Here are some ideas and helpful hints to be of assistance to you throughout your transition into high school math.

## Classroom Expectations

- 📖 Everyday you will need your math textbook, math notebook (used only for math), graphing calculator, and pencil. Make sure to bring these on the first day of school.
- 📖 A TI-83/84 Plus calculator is required for the course and should be purchased before the first day of school. The graphing calculator is essential for success in all math classes offered at OPRFHS. Your calculator can be engraved with your ID number and name in the math office free of charge.
- 📖 Notes will be taken everyday and should be neatly organized in your notebook.
- 📖 Homework is assigned daily. There will rarely be a weekend without homework being assigned. Homework is essential for your growth in mathematics—it is how you practice your math skills.
- 📖 Show all work—all the time. Show all your steps on your paper even if you can do it in your head. Using this practice on homework assignments will help you when you study and follow your notes later for quizzes and tests. You will receive valuable partial credit when you show your work on quizzes/tests too. (Samples of good and bad homework problems have been included in this packet.)
- 📖 At the end of each chapter your textbook provides internet links to online practice quizzes. These online quizzes are a great tool to test your knowledge before a test.
- 📖 No retakes on quizzes/tests. Be prepared everyday for class and you will be successful.
- 📖 If you have a question during class, do not be afraid to raise your hand and ask. Math can be challenging and you need to let your teacher know how you are doing before the day of the quiz/test!
- 📖 If you need help on homework or want to review a past quiz/test do not be afraid to go to your teacher. Your teacher has office hours outside of the school day. Make sure you become familiar with these hours and let them know if you are coming in for help. If you need help during the school day or your teacher is not available before/after school, the Tutoring Center (3<sup>rd</sup> floor library) is open before, during, and after school. You can visit the Tutoring Center during your study hall period.
- 📖 Success requires hard work.





## VOCABULARY

You should be familiar with all of the following terms:

Order of Operations	Improper Fraction
Simplest Form	Solving an Equation
Variable Terms	Evaluate an Expression
Integers	Equation
Whole Numbers	Inequality
Sum	Percent
Difference	Area
Quotient	Perimeter
Product	Coordinate System
Factors	x-axis
Greatest Common Factor	y-axis
Least Common Denominator	Ordered Pair
Least Common Multiple	Origin
Mixed Number	

**In all math classes, you are expected to show your work at all times. The following are examples of acceptable work and unacceptable work.**

<b>Acceptable Work</b> 	<b>Unacceptable Work</b> 
1) $-2(3-6)+4$ $-2(-3)+4$ $6+4$ $10$	1) $-2(3-6)+4$ $10$
2) $6+4(-5+1)^2$ $6+4(-4)^2$ $6+4(16)$ $6+64$ $70$	2) $6+4(-5^4+1)^2$ $16$ $4$ $64$ $70$
3) $\frac{1}{2} + \frac{2}{5}$ $\frac{10}{20} + \frac{8}{20}$ $\frac{18}{20} = \frac{9}{10}$	3) $\frac{1}{2} \frac{10}{20} + \frac{2}{5} \frac{8}{20} = \frac{18}{20} = \frac{9}{10}$
4) $2\frac{1}{3} \cdot 7\frac{1}{2}$ $\frac{7}{3} \cdot \frac{15}{2} = \frac{35}{2}$	4) $2\frac{1}{3} \cdot 7\frac{1}{2}$ $\frac{7}{3} \cdot \frac{15}{2} = \frac{105}{6} = \frac{35}{2}$
5) $\frac{3}{4} \div \frac{9}{8}$ $\frac{1}{4} \cdot \frac{8}{9} = \frac{2}{9}$	5) $\frac{3}{4} \div \frac{9}{8} = \frac{8}{9} \frac{24}{36} \frac{2}{3}$

**All problems should be completed without a calculator.**

**Section 1 – Use =, or >, or < to compare.**

1).  $0$  \_\_\_\_\_  $-3$

2).  $-4$  \_\_\_\_\_  $-5$

3).  $\frac{10}{5}$  \_\_\_\_\_  $2$

4).  $-\frac{1}{3}$  \_\_\_\_\_  $-0.\bar{3}$

5).  $-11.99$  \_\_\_\_\_  $-11.98$

6).  $12\frac{1}{2}$  \_\_\_\_\_  $12.5$

**Section 2 – Write in order from least to greatest.**

1).  $-2, 2.25, -2.75$

2).  $-4, 0, -1$

3).  $\sqrt{36}, \sqrt{25}, \sqrt{49}$

4).  $\frac{4}{9}, \frac{5}{9}, \frac{1}{9}$

5).  $\frac{1}{3}, \frac{1}{6}, \frac{1}{9}$

**Section 3 – Write these fractions in simplest form.**

1).  $\frac{4}{12}$

2).  $\frac{3}{27}$

3).  $\frac{6}{24}$

4).  $\frac{11}{55}$

5).  $\frac{8}{20}$

6).  $\frac{7}{14}$

7).  $\frac{90}{100}$

**Section 4 – Write each fraction as a mixed number.**

1).  $\frac{17}{5}$

2).  $\frac{35}{6}$

3).  $\frac{19}{12}$

**Section 5 – Write each fraction as an improper fraction.**

1).  $2\frac{1}{3}$

2).  $5\frac{1}{4}$

3).  $6\frac{2}{3}$

**Section 6 – Add or subtract. Write each answer in simplest form.**

1).  $\frac{1}{7} + \frac{3}{7}$

2).  $\frac{2}{3} + \frac{1}{3}$

3).  $\frac{9}{5} - \frac{6}{5}$

4).  $\frac{9}{10} - \frac{3}{10}$

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

6).  $\frac{5}{8} - \frac{1}{4}$

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

8).  $-\frac{4}{5} - \frac{7}{12}$

9).  $-\frac{3}{10} + \frac{1}{7}$

**Section 7 – Find each sum or difference.**

1).  $-3 - 6$

2).  $8 - 2$

3).  $-10 + 9$

4).  $-4 - 20$

5).  $-90 - 10$

6).  $57 - 60$

7).  $-98 + 56$

8).  $-25 - 10$

9).  $-8 - (-10)$

10).  $4 - (-20)$

11).  $-12 - (-8)$

12).  $-18 - (-8)$

13).  $-11 - 13 - 1(-12)$

14).  $35 - 15 - 16$

15).  $-18 - (-45) + 46$

**Continue with Section 7 Find each product or quotient:**

16).  $-3 \cdot -4$

17).  $-16 \cdot 2$

18).  $20 \cdot -2$

19).  $-6 \cdot -9$

20).  $(-9)(-3)$

21).  $(-11)(6)$

22).  $(9)(-15)$

23).  $(2)(-3)(5)$

24).  $12 \div -2$

25).  $-15 \div -5$

26).  $-36 \div 6$

27).  $75 \div 3$

28).  $\frac{16}{-2}$

29).  $\frac{-81}{9}$

30).  $\frac{-18}{-3}$

31).  $\frac{75}{3}$

**Section 8 – Multiply or Divide. Write answer in simplest form.**

1).  $\frac{2}{5} \cdot \frac{3}{4}$

2).  $\frac{1}{2} \cdot \frac{1}{2}$

3).  $\frac{7}{8} \cdot \frac{1}{5}$

4).  $3\frac{1}{5} \cdot 1\frac{7}{8}$

5).  $\frac{3}{5} \div \frac{1}{2}$

6).  $\frac{4}{5} \div \frac{9}{10}$

7).  $7\frac{2}{3} \div \frac{2}{9}$

8).  $\frac{10}{9} \div \frac{2}{27}$

**Section 9 – Simplify each expression.**

1).  $30 \div 2(3)$

2).  $4 + 6(7)$

3).  $4 \cdot 3^2 + 2$

4).  $(2+4) \div (2+1)$

5).  $2 + 9 - 4 + 3$

6).  $8 \div 2 \cdot 4$

7).  $8(4-2)$

8).  $4 + 8 \div 2 + 6 \cdot 3$

9).  $4 - (6 + 3)$

10).  $\frac{3(6+2)}{3+1}$

11).  $7 + 3(-2+4)^2$



**Section 13 – Evaluate each expression for  $a = -2$  and  $b = -3$**

1).  $a - b$

2).  $a \cdot b$

3).  $a(b)$

4).  $b \cdot a$

5).  $ab$

6).  $b - a$

7).  $a \div b$

8).  $\frac{a}{b}$

<b>ANSWERS TO SECTION 1</b>								
1) >	2) >	3) =	4) =	5) >	6) =			
<b>ANSWERS TO SECTION 2</b>								
1) -2.75, -2.25		2) -4, -1, 0		3) $\sqrt{25}, \sqrt{36}, \sqrt{49}$				
4) $\frac{1}{9}, \frac{4}{9}, \frac{5}{9}$		5) $\frac{1}{9}, \frac{1}{6}, \frac{1}{3}$						
<b>ANSWERS TO SECTION 3</b>								
1) $\frac{1}{3}$	2) $\frac{1}{9}$	3) $\frac{1}{4}$	4) $\frac{1}{5}$	5) $\frac{2}{5}$	6) $\frac{1}{2}$	7) $\frac{9}{10}$		
<b>ANSWERS TO SECTION 4</b>								
1) $3\frac{2}{5}$		2) $5\frac{5}{6}$		3) $1\frac{7}{12}$				
<b>ANSWERS TO SECTION 5</b>								
1) $\frac{7}{3}$		2) $\frac{21}{4}$		3) $\frac{20}{3}$				
<b>ANSWERS TO SECTION 6</b>								
1) $\frac{4}{7}$	2) 1	3) $\frac{3}{5}$	4) $\frac{3}{5}$	5) $\frac{17}{12}$	6) $\frac{3}{8}$	7) $-\frac{1}{6}$	8) $-\frac{83}{60}$	9) $-\frac{11}{70}$
<b>ANSWERS TO SECTION 7</b>								
1) -9	2) 6	3) -1	4) -24	5) -100	6) -3			
7) -42	8) -35	9) 2	10) 24	11) -4	12) -10			
13) -12	14) 4	15) 73	16) 12	17) -32	18) -40			
19) 54	20) 27	21) -66	22) -135	23) -30	24) -6			
25) 3	26) -6	27) 25	28) -8	29) -9	30) 6			
31) 25								

**ANSWERS TO SECTION 8**

1) $\frac{3}{10}$	2) $\frac{1}{4}$	3) $\frac{7}{40}$ 38	4) 6
5) $\frac{6}{5}$	6) $\frac{8}{9}$	7) $\frac{69}{2}$	8) 15

**ANSWERS TO SECTION 9**

1) 5	2) 46	3) 38	4) 2
5) 10	6) 16	7) 16	8) 26
9) -5	10) 6	11) 19	

**ANSWERS TO SECTION 10**

1) 25%	2) 80%	3) 50%	4) 67%
5) 47.8%	6) 75%	7) 8%	8) 17%

**ANSWERS TO SECTION 11**

A. (0, 0)	B (3, 4)	C (-4, -3)	D (0, -6)	E (7, 0)	F (-5, 5)
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**ANSWERS TO SECTION 12**

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**ANSWERS TO SECTION 13**

1) 1	2) 6	3) 6	4) 6	5) 6	6) -1	7) $\frac{2}{3}$ or $\bar{.6}$	8) $\frac{2}{3}$ or $\bar{.6}$
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