ST. MARY'S DOMINICAN HIGH SCHOOL
Algebra I and Algebra I (Honors) Summer Worksheet

Dear Student:

Your progress in Algebra I/Algebra I (Honors) is dependent upon a knowledge of basic arithmetic concepts. Below are listed several problems that should be reviewed over the summer. In order to help you prepare for this course, solve these problems <u>without</u> the use of a calculator, and check your answers with the attached answer key. Although no test will be given at the beginning of the school year, a grade will be given for completing this assignment.

If you have difficulty with any of the concepts, please review them during the summer.
You can either use Math books from elementary school, a workbook purchased at a school supply center, or internet math help websites such as khanacademy.org.

In order to receive full credit for your work, be sure to follow these instructions.

1. Do all work in pencil and on loose-leaf paper.
2. Copy each problem. **SHOW ALL REQUIRED WORK NEATLY AND IN A CLEAR MANNER.** Box your answer. Word problems should be answered in complete sentences.
3. Bring your completed assignment to school on the second day of class.

Your work will be collected, and a grade will be given based on **completeness and effort**.
Try your best!!!

Sincerely,

St. Mary's Dominican Mathematics Department

I. FRACTIONS:

1. $\dfrac{5}{12} \bullet \dfrac{4}{7}$

2. $2\dfrac{1}{3} \bullet 3\dfrac{1}{2}$

3. $8 \bullet 3\dfrac{1}{3}$

4. $12 \div 3\dfrac{3}{4}$

5. $4\dfrac{1}{2} \div 12$

6. $\dfrac{4}{5} \div \dfrac{2}{3}$

7. $2 + \dfrac{9}{8}$

8. $\dfrac{1}{4} + \dfrac{5}{6}$

9. $9\dfrac{5}{6} + 8\dfrac{1}{6}$

10. $12\dfrac{2}{3} + 6\dfrac{5}{8}$

11. $\dfrac{7}{8} - \dfrac{2}{3}$

12. $5\dfrac{2}{3} - \dfrac{1}{4}$

13. $3\dfrac{1}{5} - 1\dfrac{1}{2}$

14. Katy uses $10\dfrac{4}{5}$ calories a minute jogging. How many calories does she burn if she jogs 15 minutes?

15. One section of a cross-country ski trail is $2\dfrac{5}{8}$ miles long, and the other is $1\dfrac{3}{4}$ miles long. Find the total length of the trail.

II. DECIMALS AND PERCENTS:

1. $3.1 - 0.013$

2. $4.243 + 180.02 + 17.31$

3. $3.021 + 6 + 0.9$

4. $(3.98)(57.5)$

5. $(0.04)(83)(5.1)$

6. $6\overline{)0.2172}$

7. $0.8\overline{)536}$

8. $\dfrac{8.64}{0.135}$

9. $0.41 \div 0.005$

10. Write $\dfrac{1}{8}$ as a decimal.

11. 75% of 128

12. 0.02% of 4000

13. 120% of 45

14. How much would 2.25 pounds of grapes cost if they were $0.80 per pound?

15. Janet paid $149 plus 6% sales tax for a sculpture. What was the total cost?

16. Six pounds of cashews cost $42.00. How much do two pounds cost?

III. PRE-ALGEBRA SKILLS

1. Find the prime factorization of 84.   2. What is the greatest common factor of 27 and 36?

3. What is the least common multiple of 12 and 8?

4. Write the expression $0.2 \times 0.2 \times 0.2 \times 0.2$ using exponents.

5. Find the perimeter and area of a square whose edge length is 30 units.

6. Find the perimeter and area of a rectangle 4 in. wide and 6 in. long.

7. Find the perimeter and area of the triangle on the right.   9   15

8. Find the volume of a rectangular prism with length 9ft, width 5 ft, and height 3 ft.   12

9. What is the missing term in the proportion? $\dfrac{?}{16} = \dfrac{18}{24}$
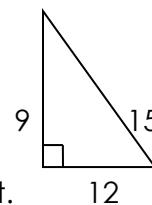
Using good math terminology, <u>explain </u>how you found the missing term.

10. You are riding your bicycle. If you take 28 minutes to go 8 miles, how long will it take you to go 15 miles?

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IV. OPERATIONS WITH INTEGERS

1. Order the integers from least to greatest: -3, 16, 0, -6, 20, and -8.   2. -32_____-17   (> or <)

3. (-27) + (-13)   4. 8 + (-12)   5. -21 – 17   6.   9 – (-5) – (-4)   7. (-5)(-10)

8. 2(-4)(6)   9. $\dfrac{-36}{\dfrac{9}{2}}$

10. Sally and Scott both simplified the problem $4+8 \div 2+6 \times 3$. Sally got the answer 26, and Scott got an answer of 36. Using good math terminology, explain who is correct and why, as well as what the other person did that was incorrect.

Simplify the following expressions using the order of operations. Show all steps.

11. $3\left(\dfrac{9+15}{6}\right)$ 12. $5[2(8+5)-15]$ 13. $\dfrac{4(8-3)}{3+2}$ 14. $14 \div [3(8-2)-11]$

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ANSWER KEY:

I. FRACTIONS

1. $\dfrac{5}{21}$

2. $\dfrac{49}{6}$ or $8\dfrac{1}{6}$

3. $\dfrac{80}{3}$ or $26\dfrac{2}{3}$

4. $\dfrac{16}{5}$ or $3\dfrac{1}{5}$

5. $\dfrac{3}{8}$

6. $\dfrac{6}{5}$ or $1\dfrac{1}{5}$

7. $\dfrac{25}{8}$ or $3\dfrac{1}{8}$

8. $\dfrac{13}{12}$ or $1\dfrac{1}{12}$

9. 18

10. $\dfrac{463}{24}$ or $19\dfrac{7}{24}$

11. $\dfrac{5}{24}$

12. $\dfrac{65}{12}$ or $5\dfrac{5}{12}$

13. $\dfrac{17}{10}$ or $1\dfrac{7}{10}$

14. Katy burns 162 calories in 15 minutes.

15. The total length of the trail is $\dfrac{35}{8}$ or $4\dfrac{3}{8}$ miles.

II. DECIMALS/PERCENTS

1. 3.087
2. 201.573
3. 9.921
4. 228.85
5. 16.932
6. 0.0362
7. 670
8. 64
9. 82
10. 0.125
11. 96
12. 0.8
13. 54
14. 2.25 lbs of grapes would cost $1.80.
15. The total cost of the sculpture was $157.94.
16. Two pounds of cashews cost $14.00

III. PRE-ALGEBRA SKILLS

1. $2^2 \times 3 \times 7$
2. 9
3. 24
4. $(0.2)^4$
5. Perimeter: 120 units;
   Area: 900 units^2
6. Perimeter: 20 in.;
   Area: 24 in^2
7. Perimeter: 36 units; Area: 54 units^2
8. 135 ft^3
9. 12
10. It will take you 52.5 minutes
    to go 15 miles.

IV. OPERATIONS WITH INTEGERS

1. -8, -6, -3, 0, 16, 20
2. <
3. -40
4. -4
5. -38
6. 18
7. 50
8. -48
9. -8
10. Answer will be discussed in class.
11. 12
12. 55
13. 4
14. 2