ST. FRANCIS
DE SALES
CATHOLIC SCHOOL

Summer Math Packet

For

Students entering 8th grade Algebra 1

Please have your student complete this packet and return it the first day of school next fall.

- The packet must be hole-punched and put into a 3-clasped folder.
- The student name must be written on the front of the folder.
- ALL WORK MUST BE SHOWN FOR FULL CREDIT. (Extra paper may be used for work.)
- Packets are due on September 5. (Each day the packet is late will result in a 10% deduction from the grade.)
- The packet will be graded and will count as a quiz grade.
- No packets will be accepted after Friday, September 8.

Section I

Simplify each expression (use Order of Operations-PEMDAS)

1. $3 \cdot 7 + 6 \div 2$

2. $9 \cdot 5 - 4(12 \div 6)$

Evaluate each expression for the given value of x:

3. $3x + 4, for\ x = 5.$

4. $x + [15 - (x - 1)], for\ x = 4.$

Simplify each expression.

5. $14 + -9 + -20$

6. $-62 - (-59) - 24$

Write a rule for the pattern, then find the next three numbers in the pattern.

7. $-18, -9, 0, 9, \ldots$

8. Suppose you plan to save $12 per week. You have already saved $7.50. In how many weeks will you have saved at least $100?

Multiply or divide.

9. $7(-6)$

10. $-56 \div (-8)$

11. $\frac{-72}{9}$

12. $-120 \div 40$

Section II

Simplify each expression.

1. $5a + 2b + 3a - 7b$

2. $3(2r - 5) + 8(r + 2)$

Solve each equation.

3. $x - 23 = 17$

4. $7w = -217$

5. $5 = \frac{s}{-7}$

Write and solve an equation for the scenario.

6. Thirty-six sections of fencing, all the same length, are joined to form a fence 180m long. How long is each section of fencing?

Write an inequality and graph the solution.

7. The number of passengers p on the bus is no more than 45.

8. The total t is greater than 5.

Solve each inequality.

9. $-7x < 21$

10. $h - 5 \geq -16$

Section III

Solve each equation.

1. $x + 7.8 = 12.5$

2. $\frac{x}{2.7} = 14.58$

3. $-3.4x = 30.94$

4. $-9.7 + x = 10.3$

Evaluate the formula for the given values.

5. Distance: $d = rt \; when \; r = \frac{55mi}{h} \; and \; t = 6h.$

Complete.

6. $4.5m =$ _____ cm

7. $90kg =$ _____ g

8. $68mL =$ _____ L

Write an equation and then solve (SHOW EQUATION, SHOW UNITS).

9. You spend $6.50 on a pair of gloves. You know have $7.00. How much money did you have originally?

10. The fastest speed recorded for a reptile on land is 9.7 m/s for a spiny-tailed iguana. At this rate, how long would it take this iguana to travel 116.4m?

Section IV

Evaluate for $a = -2$ and $b = 3$.

1. $(a \cdot b)^2$

2. $b^3 \cdot b^0$

Simplify.

3. $\frac{44}{52}$

4. $\frac{8m^4n^2}{40mn}$

Evaluate for $x = 4$ and $y = -3$

5. $\frac{(x+y)^3}{x}$

6. $\frac{y^2-x}{5}$

Simplify.

7. $(y^2)^3$

8. $\frac{6a^7}{15a^3}$

Write in scientific notation.

9. 43,000,000

Multiply. Write the product in scientific notation.

10. $(8.3 \times 10^6)(3\times 10^5)$

Section V

Order from least to greatest.

1. $0.5, \frac{1}{10}, 0, -\frac{1}{4}$

Write each decimal as a fraction.

2. 5.2

3. 0.002

Write each fraction as a decimal.

4. $\frac{2}{3}$

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

Simplify. Write your answer in simplest form.

6. $2\frac{1}{5} - \frac{3}{4}$

7. $\frac{-1}{6x} + \frac{1}{4}$

8. $\frac{5}{8x} \div \frac{7}{16}$

9. $3\frac{3}{4} \cdot 2\frac{4}{5}$

10. $-(2x^2y)^4$

Section VI

Find each unit rate.

1. A car travels 84 miles on 3 gallons of gas.

2. A car travels 224 miles in 4 hours.

Solve each proportion.

3. $\frac{x}{8} = \frac{90}{120}$

4. $\frac{0.8}{90} = \frac{5.6}{y}$

Write each fraction or decimal as a percent.

5. 0.005

6. $\frac{5}{4}$

Solve.

7. Find 45% of 12.

8. 20% of c is 24. What is c?

9. A bicycle that usually sells for $230 is on sale for 15% off. Find the sale price.

10. A salesperson made $120 commission selling merchandise. His commission rate was 5%. Find the dollar amount of his sales.

Section VII

Solve each equation.

1. $\frac{3}{5}b - 8 = 4$

2. $\frac{m}{2} - 5 = 4$

3. $2(7b - 6) - 4 = 12$

4. $0.015x + 3.45 = 4.65$

Solve and graph each inequality.

5. $-9a - 1 \leq 26$

6. $\frac{b}{3} + 12 > -3$

Solve each equation for the given variable.

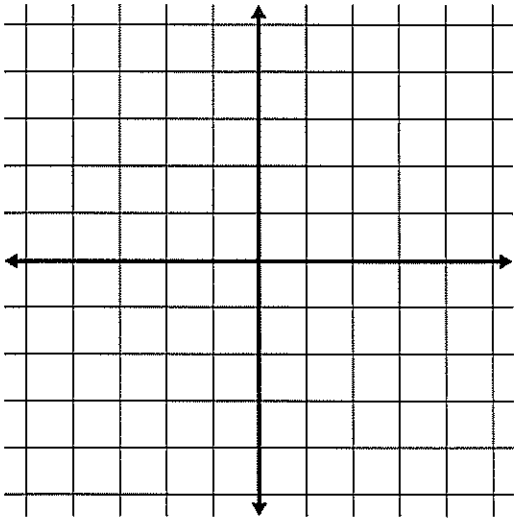
7. $d = rt \; for \; r.$

8. $y = \frac{x}{5} - 4 \; for \; x.$

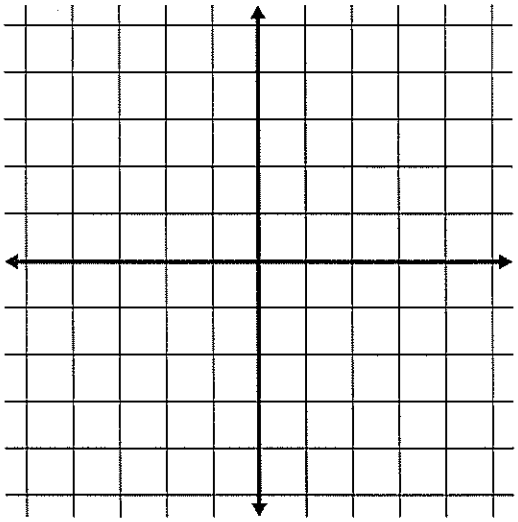
Section VIII

Graph each equation.

1. $y = 2x$



2. $3y = x - 6$

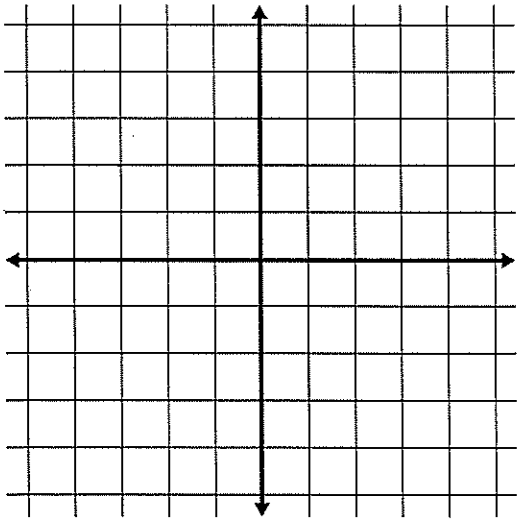


Find the slope of the line through each pair of points.

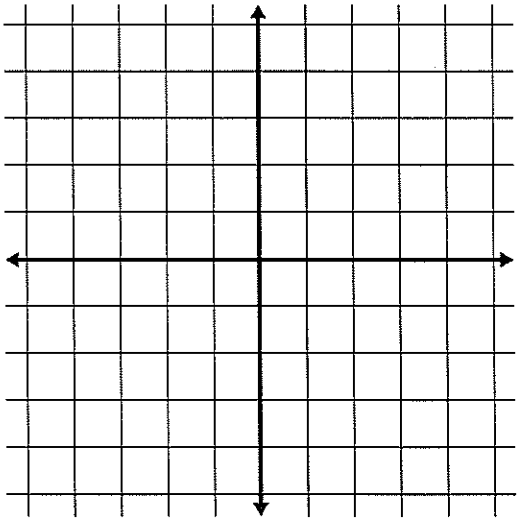
3. (0, 1) and (-5, 1)
4. (5, 9) and (3, 7)

Graph each inequality.

5. $y \geq 3x - 1$



6. $y < -x + 5$



Section IX

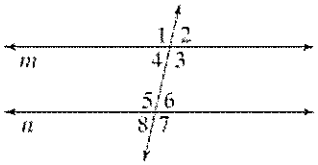
Match the vocabulary terms on the right with their descriptions on the left.

1. Angles that have the same measure, are opposite each other, and are formed by two intersecting lines
2. A flip of a figure over a line of reflection
3. A _?_ divides a figure with reflectional symmetry in half.
4. A location in space
5. A change of position or size of a figure
6. An angle whose vertex is the center of a circle
7. In a plane, all points the same distance from a given point
8. A line that intersects two other lines at different points

A. central angle
B. line of symmetry
C. reflection
D. transformation
E. vertical angles
F. transversal
G. point
H. circle

9-13. Use the diagram below.

In the diagram at the right, $m \parallel n$.



Name all angles congruent to $\angle 1$.

Name two pairs of supplementary angles.

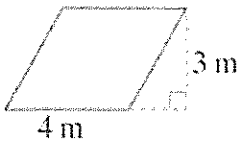
Name all pairs of corresponding angles.

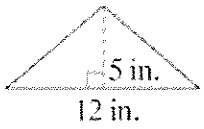
Name all pairs of alternate interior angles.

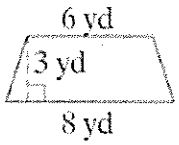
If $m\angle 2 = 75°$, find the measures of all the other angles.

Section X

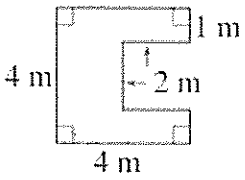
Find the area of each figure.

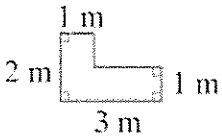
1. 

2. 

3. 

4. 

5. 

6. 

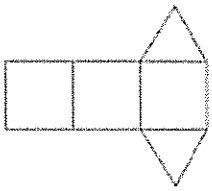
Find the missing measures.

7. circle
   $d = 4$ cm
   $A =$ ▒ cm^2

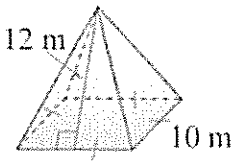
8. triangle
   $b = 7$ m
   $h = 4$ m
   $A =$ ▒ m^2

Name the space figure for each net.

9. 

10. 

Find the surface area of each figure.

11. 

12.