Geometry Summer Packet

Hi Rising 9th-graders. Here is a small Summer Packet for you. The first week of Geometry in the Fall, we'll have a "Readiness Test" to see if you're ready for Geometry. The 4 units on the next pages are to help you prepare for that test. See if you can work the problems, showing all work of course. If you can do a unit with little trouble, great. If you struggle, see if you can find a review of that topic online or consult our text. (I suspect that *factoring* will be the only issue, eh?)

You are welcome to e-mail me questions. Answers are on the last page. Watch for typos, because I knocked them out pretty fast.

My plan for rewarding your effort is to give bonus points for neat and complete packets in the Fall. You can use these bonus points on later tests and quizzes to help boost a score which you are disappointed in.

Otherwise, have a swell Summer,

DrG

Unit 1: Simplifying Expressions

Simplify the following without a calculator. Combine like terms.

1. $\sqrt{12}$

2. $\sqrt{169}$

3. $\sqrt{96}$

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

5. $3q - 5 - 9q - 2$

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

7. $-(x - 2) + x(6x - 7)$

8. $-(6n - 3) + 7n(n + 8)$

9. $8(8x + 5) - 6(8x + 1)$

10. $-5x(4x + 7) + 6(-1 + 6x)$

11. $9c + 9 + 2 - 8c + 6c - 5c - 9$

12. $3 + 8 - 3z - 5 - 9z - 1 - 6 - 4$

Unit 2: Points, lines, distances.

1. On graph paper, plot the points $A(-2, -2)$, $B(-2, 7)$, $C(3, 7)$, $D(3, 4)$, $E(8, 4)$, $F(8, -2)$. Use a straightedge to connect the points in alphabetical order, and connect F back to A. Find the area of the bounded region.

2. On graph paper, plot the points $A(-3, -2)$, $B(3, 1)$, $C(2, 3)$. Use a straightedge to draw the lines through AB, BC and CA. Find the slopes of all three lines. Which two lines are perpendicular? Find the distances AB, BC, CA. Find the area of the bounded triangle.

3. On graph paper, graph the three lines $x = -3$, $y = x$, and $3x + 5y = 15$. Find the three intersection points.

4. Find the equations of the three lines in Exercise 2 above.

Unit 3: Factoring

Factor these polynomials completely.

1. $2x^2 - 4x$

2. $3x^2y + 12xy^3$

3. $x^2 + 17x + 72$

4. $x^2 - 2x - 24$

5. $x^2 - 36$

6. $6x^2 - 5x + 1$

7. $2x^2 - 50$

8. $6x^2 + 23x + 15$

9. $5x^2 - 10x + 5$

10. $x^3 + 4x^2 + 6x + 24$

11. $6ax - 14x + 15a - 35$

Unit 4: Story Problems

On pages 447 to 449 of your Algebra 1 text is a collection of 34 story problems. Please work the odd ones. This means that *first* you write down an equation or system of equations that describes the situation. Then solve the equation(s) to get the answer. The equations are the important part.

Answers (may have typos)

Unit 1

1. $2\sqrt{3}$

2. 13

3. $4\sqrt{6}$

4. $-b + 14$

5. $-6q - 7$

6. $-27b - 12$

7. $6x^2 - 8x + 2$

8. $7n^2 + 50n + 3$

9. $16x + 34$

10. $= 20x^2 + x - 6$

11. $2c + 2$

12. $-12z - 5$

Unit 2

1. 75 square units.

2. Slope of AB is 1/2. Slope of BC is 2. Slope of AC is 1.
AB is perpendicular to BC.
The three distances are $3\sqrt{5}$, $\sqrt{5}$, and $5\sqrt{2}$.
The area of the triangle is 15 square units.

3. $(-3, -3)$, $(15/8, 15/8)$ and $(-3, 24/5)$

4. AB: $x - 2y = 1$. BC: $2x + y = 7$. CA: $x - y = -1$.

Unit 3

1. $2x(x - 2)$

2. $3xy(x + 4y^2)$

3. $(x + 8)(x + 9)$

4. $(x - 6)(x + 4)$

5. $(x - 6)(x + 6)$

6. $(3x - 1)(2x - 1)$

7. $2(x - 5)(x + 5)$

8. $(x + 3)(6x + 5)$

9. $5(x - 1)^2$

10. $(x^2 + 6)(x + 4)$

11. $(2x + 5)(3a - 7)$

Unit 4

Answers are in the back of your text.