South Brunswick Schools

Summer Assignment
Elements of Algebra 2 students

All students entering Elements of Algebra 2 are expected to be proficient in all their previously-learned algebra skills. The following exercises are intended to provide a review of the skills needed to be successful.

Directions:
- Show all work!
- You should be able to complete all the problems without the use of a calculator.
- Bring completed assignment to the first day of school

Answers to the exercises are provided on the last page – however, you must show all work to receive full credit.

Online Resources and Summer Help:
Summer math help will be provided by honor society students during the summer. Please see the summer assignment description for dates and times.

Online Resources:
- Algebra Homework Help, Algebra Solvers, Free Math Tutors
- Khan Academy: Algebra 1 | Math

Thinking Ahead: Graphing Calculator for the school year:

We highly recommend that students use a graphing calculator for success in mathematics. While our math classrooms are equipped with graphing calculators for students to use during class, students are encouraged to purchase their own graphing calculator for use at home. If you choose to purchase one, we recommend the TI-83+ or TI-84. Because these calculators are costly, students should permanently mark the calculator with their name and keep them in a safe place if they bring them to school. These calculators can be used on standardized tests such as the SAT so they are a worthwhile investment.

*** Note: THIS ASSIGNMENT SHOULD BE COMPLETED FOR TURN-IN ON THE FIRST DAY OF CLASS. YOU WILL TAKE A SKILLS QUIZ, BASED ON THIS PACKET, ON YOUR 3rd DAY OF CLASS
Name: ____________________________________________

Summer Assignment for Students Entering Elements of Algebra 2

Part 1: Evaluate each expression if \( r = 2, \ s = 5 \) and \( t = -6 \).

1) \( r^2s - t \) 

2) \( (t - r)s^2 \)

3) \( \frac{3rs}{t} \) 

4) \( \frac{(s - r)^2}{rt} \)

5) \( \frac{2s^2 - 2s}{r^5 - 3r^2} \)

Part 2: Simplify each expression.

6) \( (5x^2 + 2x - 1) + (3x^2 - 5x - 6) \) 

7) \( (14x^2 - 7x - 15) - (7x^2 + 12x - 7) \)

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Part 3: Simplify each expression.

8) \(-6(11x + 3) + 5(2x - 1)\)

9) \(4(5x - 1) - 7(x - 2)\)

10) \(3x(5x^2 - 3x + 7)\)

11) \((2x - 1)(5x + 7)\)

12) \((9x - 2)(9x + 2)\)

13) \((4x - 9)^2\)

14) \((7x - 3)(x^2 + 3x - 5)\)
Part 4: Solve each equation.

15) \( 3x - 8 = 10 \)  
16) \( -6(3x - 1) = 10 \)

17) \( -3(x - 3) + 7x = 12 \)  
18) \( 5x + 7 = 2x - 1 \)

19) \( 4(r + 4) = 7 - 2(1 - 2r) \)  
20) \( \frac{3}{4}x + 7 = \frac{1}{4}x + 1 \)

21) \( \frac{1}{7}x + \frac{3}{14} = \frac{5}{14} \)  
22) \( 3(5 - x) = \frac{1}{2}(4x - 8) + 10 \)
Part 5: Factor completely.

23) $6x^5 - 18x^2$  

24) $12x^2 - 20x$

25) $2x^2 + 5x - 12$  

26) $4x^2 - 20x + 25$

27) $x^2 - 49$  

28) $10x^2 + 7x - 6$

29) $12x^3 + 8x^2 - 20x$  

30) $4x^4 + 38x^3 + 34x^2$
Answers:

Part 1:

1) 26  
2) -200  
3) -5  
4) $-\frac{3}{4}$

5) 2

Part 2:

6) $8x^2 - 3x - 7$  
7) $7x^2 - 19x - 8$

8) $-56x - 23$  
9) $13x + 10$

Part 3:

10) $15x^3 - 9x^2 + 21x$  
11) $10x^2 + 9x - 7$  
12) $81x^2 - 4$

13) $16x^2 - 72x + 81$  
14) $7x^3 + 18x^2 - 44x + 15$

Part 4:

15) $x = 6$  
16) $x = \frac{2}{9}$  
17) $x = \frac{3}{4}$  
18) $x = -\frac{8}{3}$

19) no solution  
20) $x = -12$  
21) $x = 1$  
22) $x = \frac{9}{5}$

Part 5:

23) $6x^2(x^3 - 3)$  
24) $4x(3x - 5)$  
25) $(2x - 3)(x + 4)$

26) $(2x - 5)^2$  
27) $(x - 7)(x + 7)$  
28) $(5x + 6)(2x - 1)$

29) $4x(3x + 5)(x - 1)$  
30) $2x^2(2x + 17)(x + 1)$