Hello Future Algebra 2 Student!!!

I am so excited to have you in class next year! It's going to be awesome!!!

All the problems in this assignment are important skills you should know for Algebra 2. We will take a test on them during the first few days of school, so please make sure to try these problems and use it as your study guide for that test.   We will have time to go over it in class if you have any questions over certain problems.

Thank you so much, and I can't wait to see you in class!

ALGEBRA 2 SUMMER ASSIGNMENT

Real Numbers and Properties

List ALL sets to which each value belongs: **R**-Real, **I**-Irrational, **Q**-Rationals, **Z**-Integers, **W**-Whole, **N**-Natural

1. $\dfrac{\sqrt{5}}{\sqrt{5}}$	2. $5.08\overline{3}$	3. $\dfrac{-\sqrt{256}}{2}$	4. 2π

Name the property that justifies each statement.

5. $\dfrac{x^3}{y} \cdot 1 = \dfrac{x^3}{y}$	6. $6a^2 + ab = ab + 6a^2$
7. $(mn) +- (mn) = 0$	8. $\sqrt{7}\left(\sqrt{2} - \sqrt{10}\right) = \sqrt{7} \cdot \sqrt{2} - \sqrt{7} \cdot \sqrt{10}$
9. $5x^2 \cdot (4x \cdot 3) = (5x^2 \cdot 4x) \cdot 3$	10. $\dfrac{1}{9x} \cdot 9x = 1$

Operations and Expressions

Simplify each expression.

11. $\left[18 - (-1 - 7)^2\right] + 16 \div 2^4$	12. $\dfrac{4+\sqrt{121}-2\cdot3^3}{|-19-2(-8)|}$
13. $10a - 5ab + 4b$ (if $a = \dfrac{2}{5}$ and $b =- \dfrac{1}{6}$)	14. $\sqrt{|-x^2 - 4y^2|}$ (if $x = 3$ and $y =- 2$)

ALGEBRA 2 SUMMER ASSIGNMENT

Solve each equation	
15. $3(7 - 9x) + 23x = 4x - (24 - x)$	16. $7 - \frac{5}{2}(8x - 18) = 14 - 10(2x - 3)$
17. $\frac{7x-3}{3} = \frac{3x-4}{8}$	18. If $SA = \frac{1}{2}lp + B$, find p

19. The width of a rectangle is 4 less than one half the length. If the perimeter of the rectangle is 94 meters, find the area of the rectangle.

20. Find 3 consecutive odd numbers such that the sum of 5 times the smaller number and twice the larger number is 33 more than 6 times the median number.

Absolute Value Equations
Solve each equation. Be sure to checl for extraneous solutions.

21. $\mid -7 - 9x \mid = 2$	22. $\frac{\mid 5x - 10 \mid}{-2} = -15$
23. $2 - 10\mid x + 1 \mid = -78$	24. $\mid 2x + 7 \mid = 6x + 13$

Multi-Step Inequalities
Solve and graph each inequality. Write your answers in interval notation.

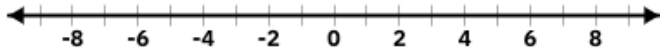| 25. $33x - 8(3x + 9) > -9$	26. $-11 - 8x \geq 23 - (7 - 4x)$
Interval Notation:	Interval Notation:
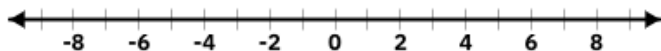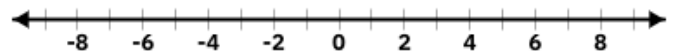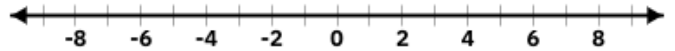
27. $11(5x - 4) - 7x \geq 8(6x - 7)$	28. $-\frac{5}{3}\left(\frac{9}{10}x + 15\right) < 7 - \left(8 - \frac{9}{2}x\right)$
Interval Notation:	Interval Notation:

Compound Inequalities
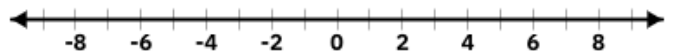
Solve and graph each compound inequality. Write your answers in interval notation.
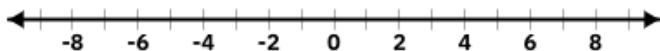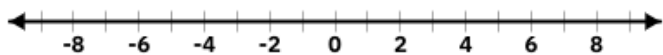
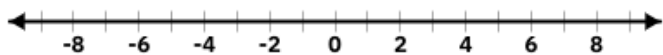| 29. $-18 \leq 2x - 8 \leq -8$	30. $x + 5 > 11$ or $8 - 10x \geq 33$
Interval Notation:	Interval Notation:

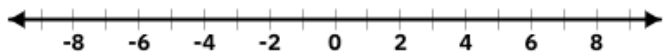31. $7x + 5 \leq -37$ and $-10x < 10$

Interval Notation:

32. $7 - 3x \leq -20$ or $5x - 6 \leq 9$

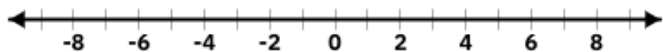Interval Notation:

33. $9x - 2 < 13$ and $3x - 2 > -29$

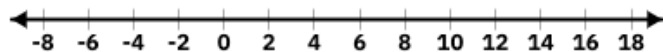Interval Notation:

34. $10 + 2x \geq 22$ or $5x - 8 > -12$

Interval Notation:

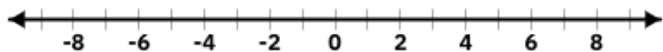| Absolute Value Inequalities |
|---|

Solve and graph each absolute value inequality. Write your answers in interval notation.
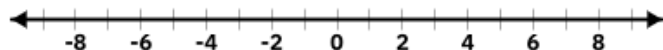
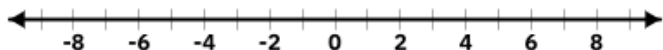| 35. $|9 - x| \geq 2$	36. $\frac{|x-3|}{-5} >- 1$
Interval Notation:	Interval Notation:
37. $|3x + 8| + 1 > 5$	38. $-3 - 6|4x - 10| <- 87$
Interval Notation:	Interval Notation: