Arlington High School

Algebra II Honors ~ Summer Packet

<u>DUE THE FIRST DAY OF SCHOOL</u>

This summer packet is for all students enrolled in Algebra II Honors for the 2019-2020 school year. The entire packet is due the first day of school. The problems in this packet are designed to help you review topics that are important to your success in Algebra II Honors. **The material included in this packet will be tested the first week of school and no calculator will be allowed.**

We will be using graphing calculators throughout the course. If you do not own a graphing calculator **it is recommended that you purchase your own calculator**. We recommend purchasing the TI-84 Plus. **Do not buy** a TI-89 because they are not allowed in class or on the ACT.

Follow the directions in the packet and complete all the problems, neatly showing all of your work. You will not be given credit for this packet if no work is shown. You should be able to complete the packet WITHOUT the use of a calculator. This packet will count as part of your first quarter Algebra II Honors grade. Any packets not turned in the first day of school will not be given full credit. Failure to turn in the packet by Wednesday, August 14th will result in a zero.

If you have forgotten how to do any of the problems in the packet, use the internet to "google" the objectives for help.

I look forward to meeting you and working with you in the Fall.

Enjoy your summer!

ALGEBRA II HONORS SUMMER PACKET

Work should be shown for all problems. Box all answers.

Objective 1: Perform basic operations with fractions.

Evaluate each expression.

1. $\dfrac{2}{6}+\dfrac{1}{6}$

2. $\dfrac{1}{3}+\dfrac{2}{5}$

3. $\dfrac{4}{5}-\dfrac{3}{7}$

4. $\dfrac{4}{3}*\dfrac{3}{7}$

5. $\dfrac{2}{7}\div\dfrac{1}{5}$

6. $\dfrac{a}{b}\div\dfrac{c}{d}$

Objective 2: Evaluate each expression. (order of operations)

7. $14+\left(6\div2\right)$

8. $10\div5\cdot4$

9. $3\left(4-7\right)-11$

10. $1+2-3\left(4\right)\div2$

11. $\dfrac{-8\left(13-37\right)}{6}$

12. $\left[4\left(5-3\right)-2\left(4-8\right)\right]\div16$

Objective 3:   Solve equations.

Solve for **x**.

13. $6x-2=5x-7-3x$

14. $3\left(x-5\right)+8x=18-\left(3-10x\right)$

15. $x-\dfrac{c}{2}=-\dfrac{3c}{2}$

16. $c+ax=dx$

17. $t=\dfrac{pd}{2x}$

18. $\left|3x+19\right|=13$

1

Objective 4: Solve inequalities. Graph your solution on a number line.

19. $36 - 11x \geq -63$

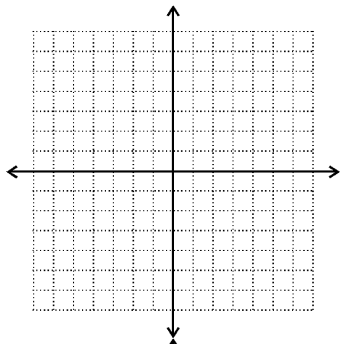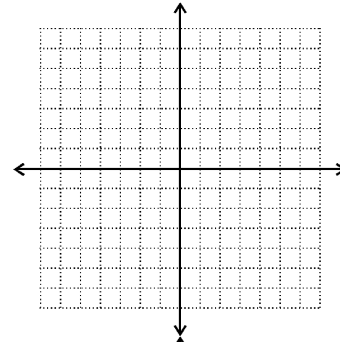20. $5 - 3(10 - 7x) < 4(2x + 10)$

21. $14 < 5 - 3x \leq 53$

37. $10x - 4y = -20$

38. $y = 2x + 3$ $10x - 4y = -20$

38. $y = 2x + 3$

22. $3x - 13 < -4$ or $7 - 2x \leq 5$

23. $|x + 7| > 12$

39. $x = 3$

40. $y = -7$ $x = 3$

40. $y = -7$

Objective 5: Graph linear equations.

Graph each line on the coordinate plane provided.

37. $10x - 4y = -20$

38. $y = 2x + 3$ $10x - 4y = -20$

38. $y = 2x + 3$

41. $x = 5$ $x = 5$

41. $3y = 12$ $3y = 12$

$3y = 12$

39. $x = 3$

40. $y = -7$ $x = 3$

40. $y = -7$

$y = \dfrac{1}{5}x - 5$

$y = -3x$ $y = \dfrac{1}{5}x - 5$

$y = -3x$

41. 26. $y = \dfrac{1}{5}x - 2$

$y = \dfrac{1}{5}x - 5$ $3y = 12$

$3y = 12$

45.
$4x - y = -2$

46. 45.
$3x - 8y + 24 = 0$

46.
$3x - 8y + 24 = 0$

$y = \dfrac{1}{5}x - 5$
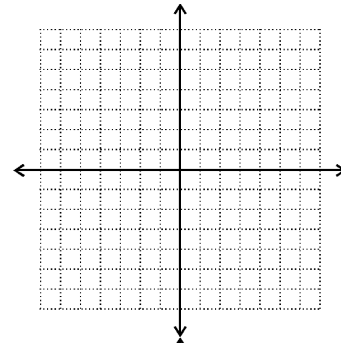
$y = -3x$ $y = \dfrac{1}{5}x - 5$

$y = -3x$
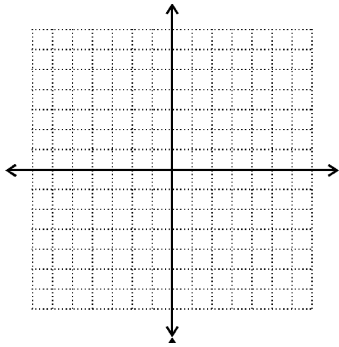
Objective 6: Identify x and y intercepts.

Find the x and y intercepts of the line. Express your answer as an ordered pair.

28. $10x - 4y = -20$ 29. $y = 2x + 3$ 30. $x = 3$

Objective 7: Find the slope of a line.

Find the slope of the line.

31. through $(4,9)$ and $(11,5)$ 32. through $(8,-1)$ and $(-8,-1)$ 33. $y = 2x - 5$

34. $y = -1$ 35. $x = 4$ 36. $6x - 10y = -1$

Objective 8: Write the equation of a line.

Write the equation of the line in slope-intercept form.

37. slope = -2, y-intercept = -7   38. slope = -4, passing through $(-2,-5)$

Objective 9: Simplify expressions involving exponents.

Simplify each expression.

39. $d^2 d^4$ 40. $(-a)^2 (-a)^3$ 41. $\left(x^4 y^5\right)^3$ 42. x^{-3}

43. $\dfrac{a^{10} b^2}{a^4 b^9}$ 44. $\dfrac{\left(xy^3\right)^2}{xy^{-1}}$

Objective 10: Factor polynomials.

Factor completely.

45. $x^2 - 49$

46. $3x^2 - 75x$

47. $x^2 + 12x + 32$

48. $x^2 - 3x - 28$

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

50. $3x^2 - 8x + 5$

51. $2x^2 + 13x + 21$

52. $x^4 - 81$

$x - 4y = -20$

38. $y = 27x + 30x - 4y = -20$

38. $y = 2x + 3$

$= 3$

40. $y = 39. x = 3$

40. $y = -7$

Objective 11: Graph quadratic equation.

Graph each parabola.

53. $y = x^2 - 6x + 5$

54. $f(x) = x^2 - 4$

$= 5$

$3y + 12x = 5$

$3y = 12$

$\frac{1}{5}x - 5$

$y = -3x$
$y = \frac{1}{5}x - 5$

$y = -3x$