Summer Assignment 2024
Incoming Pre Calculus

Dear Student,

This summer assignment will prepare you for success in Pre Calculus. Please complete the following exercises this summer and be prepared to submit your work by Tuesday September 10 to your Pre Calculus teacher.

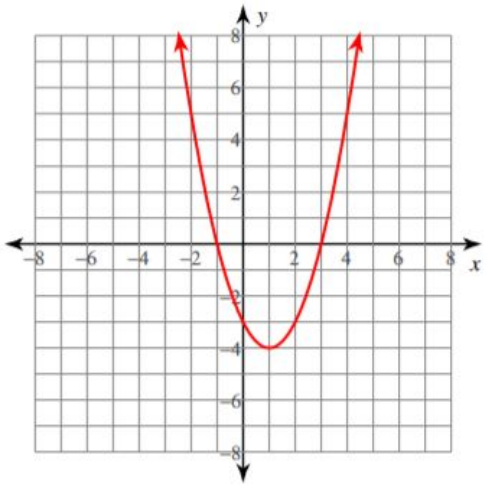
This packet will be counted as the first homework assignment of the year. In order to receive full credit, all work must be shown neatly in the space provided or attached to this packet on separate sheets of paper. Answers written with no work shown will receive no credit. You are encouraged to work in groups to help each other, however copying is unacceptable. This packet consists of Algebra 2 and Geometry concepts, so it is expected that you are coming in to this course knowing this material. If there is anything in this packet that you do not remember, scan the QR code for that section and it will take you to a video lesson on that topic.

If you have any questions, please reach out to your math teacher or jtalewsky@bbrook.k12.nj.us.

Sincerely,

The BBHS Math Department

Use the graph to find the indicated information. Write all intervals in interval notation



1. The x-intercept(s):

2. The y-intercept(s):

3. The vertex:

4. Domain:

5. Range:

6. Increasing/Decreasing:

Evaluate each function.

7. $h(t) = |t+2| + 3$; Find $h(6)$

8. $f(x) = x^2 - 3x$; Find $f(-8)$

9. $p(a) = -4^{3a}$; Find $p(-1)$

Evaluate each function.

10. $h(t) = 2 \cdot 3^{t+3}$; Find $h(4+t)$

11. $g(n) = n^3 - 5n^2$; Find $g(-4n)$

12. $f(n) = n^2 - 2n$; Find $f(n^2)$

Write the equation of each line, in slope intercept form, using the given information.

13. Passing through the points (7,2) and (3,-2).

14. Parallel to the line 3x-y=6 passing through the point (-2,5).

15. Perpendicular to y=2x-1 passing through the point (-10,3).

Simplify each expression. Write your answer in standard form.

16. $(5p^2 - 3) + (2p^2 - 3p^3)$

17. $(5a + 4) - (5a + 3)$

18. $(3 - 6n^5 - 8n^4) - (-6n^4 - 3n - 8n^5)$

19. $2x(-2x - 3)$

20. $(2n + 2)(6n + 1)$

21. $(7k - 3)(k^2 - 2k + 7)$

Factor each expression.

22. $x^2 - 7x - 18$

23. $x^2 - 16x + 63$

24. $7k^2 + 9k$

25. $7x^2 - 31x - 20$

26. $2b^2 + 17b + 21$

27. $28n^4 + 16n^3 - 80n^2$

28. $3b^3 - 5b^2 + 2b$

29. $30n^2b - 87nb + 30b$

30. $9p^2r + 73pr + 70r$

31. $9x^2 + 7x - 56$

32. $63n^3 + 54n^2 - 105n - 90$

33. $56xy - 35x + 16ry - 10r$

Solve each quadratic equation.

34. $n^2 + 3n - 12 = 6$

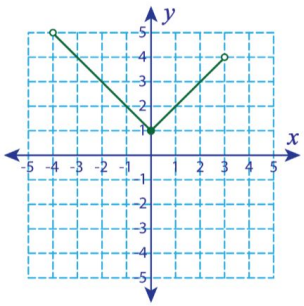
35. $6n^2 - 18n - 18 = 6$

36. $-4k^2 - 8k - 3 = -3 - 5k^2$

37. $k^2 - 31 - 2k = -6 - 3k^2 - 2k$

Write the domain, range, increasing and decreasing intervals for each graph. Write all answers in interval notation.

38.



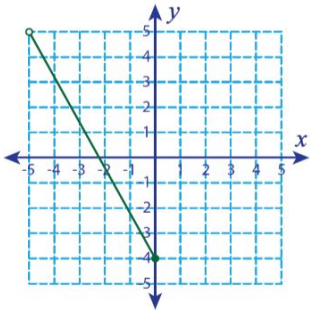
Domain: _____

Range: _____

Increasing: _____

Decreasing: _____

39.



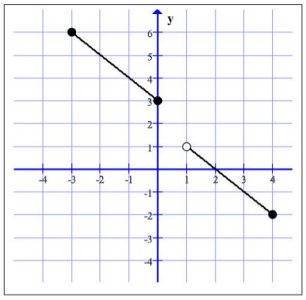
Domain: _____

Range: _____

Increasing: _____

Decreasing: _____

40.



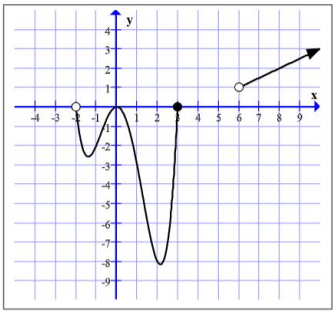
Domain: _____

Range: _____

Increasing: _____

Decreasing: _____

41.



Domain: _____

Range: _____

Increasing: _____

Decreasing: _____

Match each parent function to its graph.

42. y = x

43. $y = x^2$

44. $y = x^3$

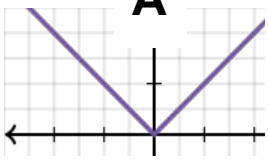
45. $y = \sqrt{x}$

46. $y = |x|$

47. $y = \frac{1}{x}$

48. $y = 2^x$

A



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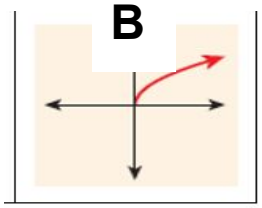

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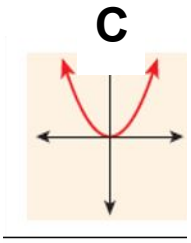

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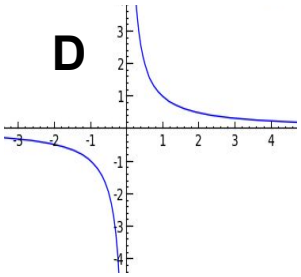

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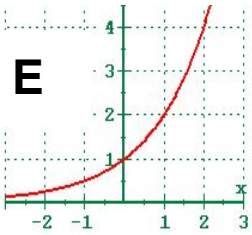

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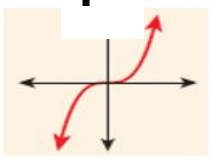

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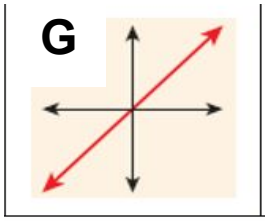
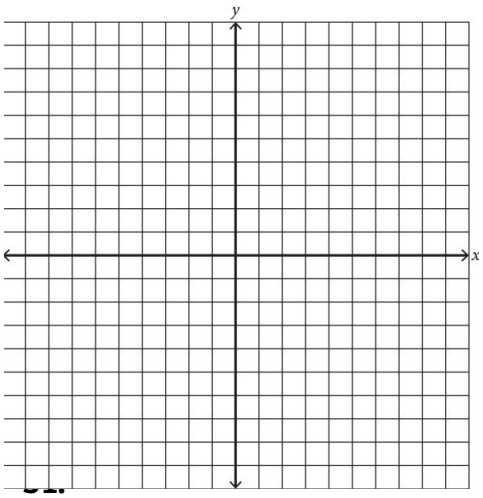


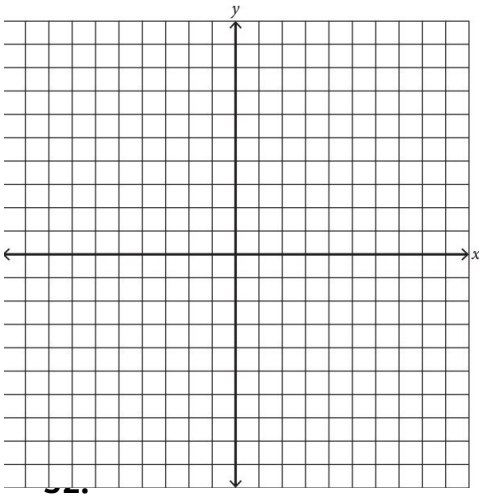
Graph each function using a table.

49 $y = \sqrt{x}$



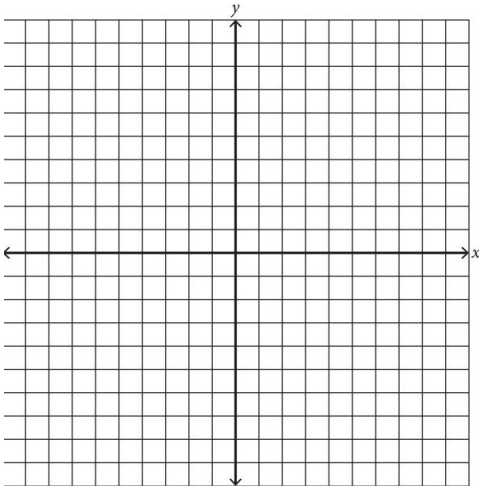
x	y

50. $y = x^2$



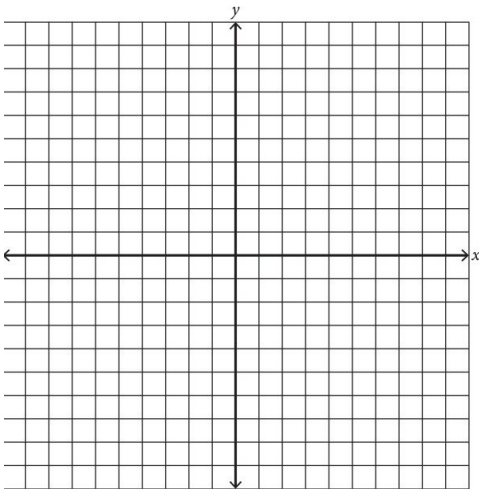
x	y

51. $y = x^3$



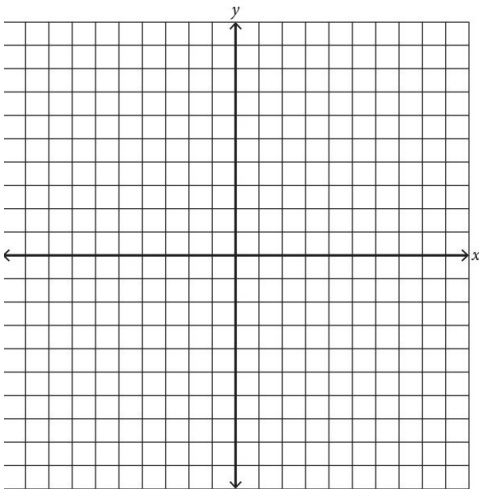
x	y

52. $y = |x|$



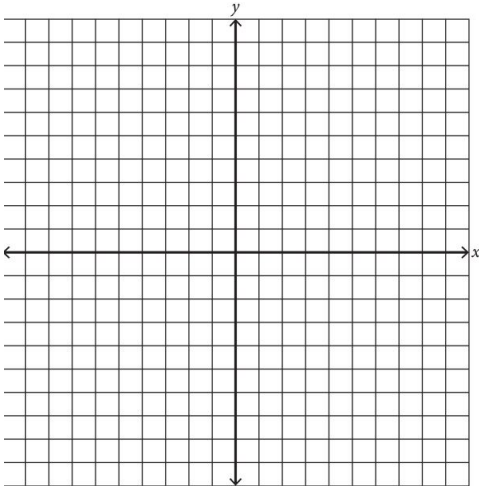
x	y

53. $y = \dfrac{1}{x}$



x	y

54. $y = 2^x$



x	y

Math Department Course Requirements

~ Bound Brook High School ~

Course Prerequisites: A combination of 2 or more of the following…

Course Expectations

College Prep	Honors	Dual Enrollment	AP
8th Grade Algebra 1 Readiness Test (Algebra 1 CP)	**Alg. 1 and Geometry** Honors Prerequisite 75%+ CP Prerequisite 90%+ Teacher Recommendation Student Work Ethic LinkIT Form C Meeting/Exceeding ***Appeal Process Available***	**Quant. Reasoning** Honors Prerequisite 70%+ CP Prerequisite 80%+ Teacher Recommendation ***Accuplacer Testing** Student Work Ethic ***Appeal Process Available*** *** Required**	**Statistics** Honors Prerequisite 80%+ CP Prerequisite 90%+ Teacher Recommendation Student Work Ethic ***Appeal Process Available***
	Honors **Algebra 2** Alg. 1 H Prerequisite 75%+ Alg. 1 CP Prerequisite 90%+ Teacher Recommendation Student Work Ethic LinkIT Form C Meeting/Exceeding ***Appeal Process Available***	**Dual Enrollment** **Pre-Calculus Honors** Honors Prerequisite 80%+ CP Prerequisite 90%+ Teacher Recommendation ***Accuplacer Testing** Student Work Ethic ***Appeal Process Available*** *** Required**	**AP/Dual Enrollment** **Calculus** Pre-Calc Honors Prerequisite 70%+ CP Prerequisite 90%+ and ***Accuplacer Testing** Teacher Recommendation Student Work Ethic ***Appeal Process Available*** *** Required**

CP Alg. 1, Geometry, Alg. 2, Pre-Calc

- Summer Assignment Optional
- 8-10 Major Assessments
- 2 Projects Per Year
- Additional Minor Assessments
- Up to 30 minutes of HW each night

Honors Alg. 1, Geometry, Alg. 2

- Required Summer Assignment
- 10-12 Major Assessments Per Year
- 2 Projects Per Year
- Additional Minor Assessments
- Assessments will be timed and must be completed in that time frame.
- Up to 45 minutes of HW each night

Quantitative Reasoning

- Required Summer Assignment
- 4 Labs Per Year
- 4-6 projects Per Year
- Additional Tests/Quizzes
- Final Exam
- Daily Preparation: 1 additional hour for each hour of class time (Studying/Homework)

Pre-Calculus Honors

- Required Summer Assignment
- 6-7 Labs per semester (12-14 year)
- 7 Tests
- 1 Project
- Semester Final Exams (2)
- Daily Preparation: 1 additional hour for each hour of class time (Studying/Homework)

AP Calculus

- Required Summer Assignment
- 8 Labs per year
- Additional Tests/Quizzes
- Final Exam
- Daily Preparation: 1 additional hour for each hour of class time plus weekend assignments

AP Statistics

- Required Summer Assignment
- 2 Major Projects
- 10 Tests
- Additional Quizzes and AP Graded Practice
- Daily Preparation: 1 additional hour for each hour of class time (Studying/Homework)

***Appeal Process*: Students may appeal their placement by scheduling a meeting with the department supervisor. The student should come to this meeting prepared with other evidence to demonstrate they meet the requirements for honors/AP level classes.