Bayonne Public Schools
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June 1, 2009

Dear Parents/Guardians,

The Bayonne School District's goal is the education of Bayonne's children. It is our expectations that students see the beauty and importance of mathematics.

These Mathematical projects and activities allow students to explore mathematics in exciting ways. Your child will be receiving a packet of math activities which he/she will complete over the summer months. All assignments must be presented to your child's math teacher no later than Monday, September 14, 2009 and will count as one test grade for the first marking period.

Make Math a part of your summer by looking for numbers and shapes on your walks and trips. Practice your basic facts daily!

As partners in your child's education, we request that you sign and return the form below to your child's current mathematics teacher no later than June 5, 2009.

Patricia L. McGeehan, Ed.D.
Superintendent of Schools

Ellen M. O'Connor, Ed.
Assistant Superintendent

Ann Marie Palmieri-Monahan
Director of Mathematics

----------**Please cut and return bottom portion to your child's teachers**----------

STUDENT NAME_____ GRADE _____

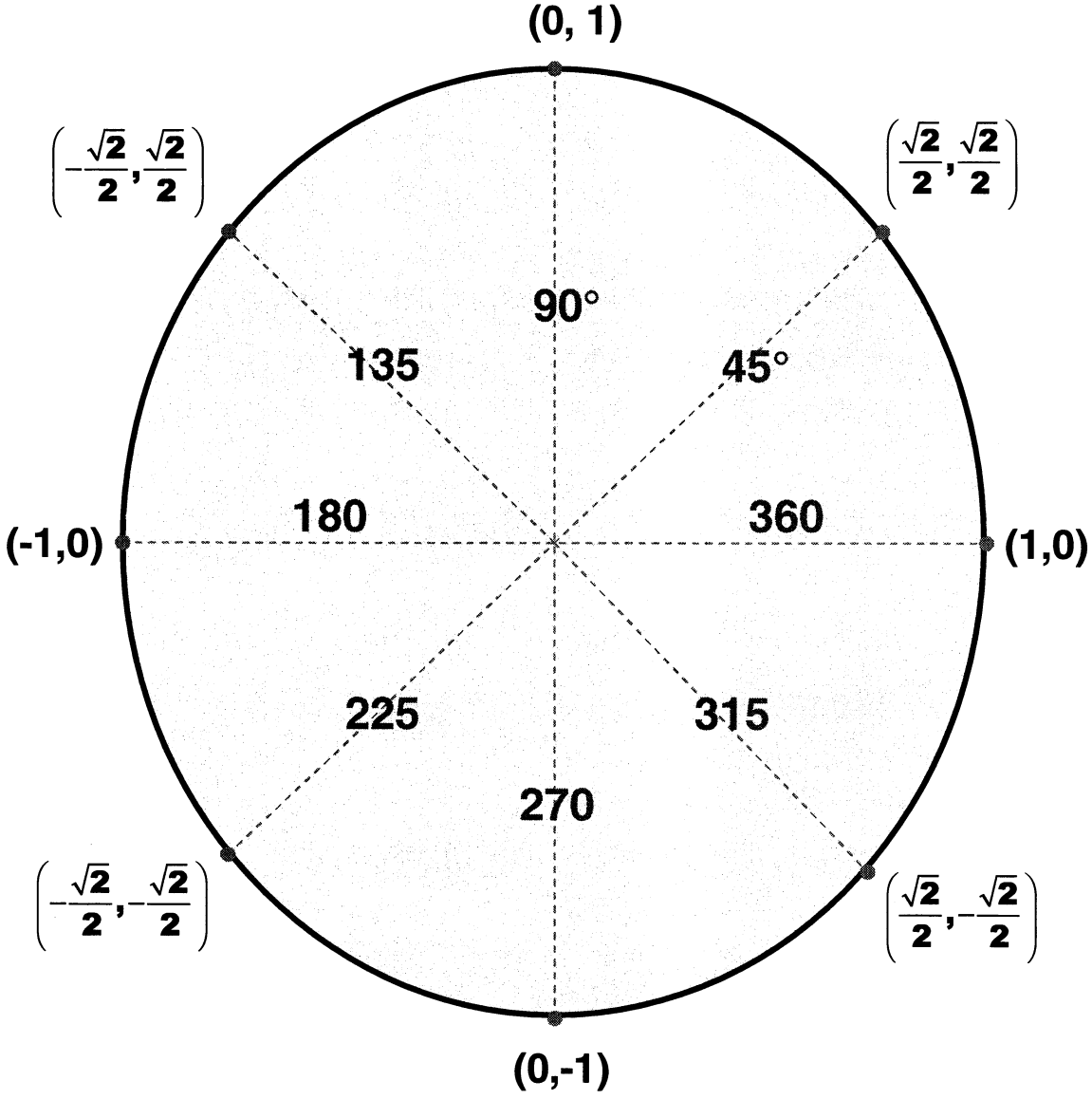
TEACHER_____ SCHOOL_____

PARENT/GUARDIAN SIGNATURE _____

Bayonne Public Schools

WWW.BBOED.ORG

Building Bridges to PreCalculus/Trigonometry Honors



Summer Math Enrichment Project 2009

Patricia L. McGeehan, Ed.D.
Superintendent

Ellen M. O'Connor, Ed.D.
Assistant Superintendent

Ann Marie Palmieri-Monahan
Director of Mathematics

Name:_____ Date:_____

Teacher: _____ BHS PreCalc/Trig Honors Summer Project

Rubric for Scoring of Math

	Numbers/ Operations	Algebra / Geometry	Graphing	Mathematical Modeling
	Use arithmetic operations to: • Identify Properties • Find maximums and minimums	Use variables and solve equations, linear, quadratic and exponential, to answer questions about real-world data.	• Interpret and convey numerical information in appropriate graphs • Graph a linear and quadratic equation • Interpret slope	Connect mathematical concepts and methods to real-world situations
4	Superior: (85% - 100% correct) Nearly flawless.			
3	Proficient: (70% - 85% correct) Equations are nearly correct. Models will be reasonable and meaningful. There is much better use of equations that for "essential." For the most part, graphs will be correct.			
2	Essential: (30% - 70% correct) There is evidence of comprehension and a reasoned approach to the problem. There will be errors, and logic may be hard to discern. Estimates will be better than for those "in progress." There may be an attempt to use an equation.			
1	In progress: (0 – 30% correct) Floundering, very little idea of what is to be done.			

Grade: _____

Teacher Comments:

Name: _____

Summer Bridges for students entering PreCalc/Trig Honors

Solve each equation

1. Complete the table of solutions for the equation $y = 2x - 5$

1.

x	y
-2	
3	
	-7
	3

2. This year a news agency purchased a delivery vehicle for $27,000. The vehicle's value will depreciate $4,500 a year for each of the next 6 years. The equation $y = 27,000 - 4,500x;\ 0 \le x \le 6$ models the vehicle's value, where y is the value of the vehicle and x is the number of years after purchase. In how many years will the value of the vehicle be 13,500?

2. _____

3. Write the complex number $\frac{7+4i}{4-3i}$ in standard form.

3. _____

4. Find the equation of a line that contains (3, 4) and has slope 2. Write the equation in slope-intercept form.

4. _____

5. Find the equation of a line that has x-intercept 2 and y-intercept -7. Write the equation in slope-intercept form.

5. _____

6. In standard form, write the equation of a circle with center (2, -6) and radius 9.

6. _____

7. Solve:
$|6 - 4x| = 5$

7. _____

8. Solve:
$4x^3 - 2x^2 - 4x - 1 = 0$

8. _____

9. Write the equation of a line through the point (-1, 2) and parallel to the line with equation $3x - 2y - 5 = 0$.

9. _____

10. Solve the inequality $|2x+3|>1$ algebraically. Write the solution in interval notation and draw its number line graph. 10. _____

11. Use the quadratic formula to solve $6x^2-4x+5=0$ 11. _____

12. Solve the inequality $x^2-x-6\le 0$. Express your answer in interval notation. 12. _____

13. Solve the equation $x^2+5=8x$ by completing the square. 13. _____

14. A projectile is launched straight up from the ground with an initial velocity of $320\frac{\mathbf{ft}}{\text{sec}}$. At what time(s) will the projectile be at least 1,584 feet above the ground? 14. _____

15. $27\left(-\frac{2}{3}\right)$ 15. _____

16. $\frac{5}{18}\div\frac{15}{8}$ 16. _____

17. $\left(-\frac{3}{5}\right)^3$ 17. _____

18. $\left(\frac{3^2}{2}\right)^{-3}$ 18. _____

19. $\sqrt{5}\,g\sqrt{125}$ 19. _____

20. $\frac{\sqrt{72}}{\sqrt{2}}$ 20. _____

21. $\frac{5.4\times10^8}{3\times10^3}$ 21. _____

22. $\left(3\times10^4\right)^3$ 22. _____

23. $3z^2\left(2z^3\right)^2$ 23. _____

24. $(u-2)^{-4}(u-2)^{-3}$ 24. _____

25. $\left(\frac{x^{-2}y^2}{3}\right)^{-1}$ 25. _____

26. $9z\sqrt{8z}-3\sqrt{2z^3}$ 26. _____

27. $-5\sqrt{16y}+10\sqrt{y}$ 27. _____

28. $\sqrt[3]{\frac{16}{v^5}}$ 28. _____

29. $\left(x^2+3\right)-\left[3x+\left(8-x^2\right)\right]$ 29. _____

30. $\left(x+\sqrt{5}\right)\left(x-\sqrt{5}\right)$ 30. _____

31. Factor
$2x^4-3x^3-2x^2$ 31. _____

32. Factor
x^3+2x^2-4x-8 32. _____

33. $\frac{16}{\sqrt[3]{16}}$ 33. _____

34. $\frac{6}{1-\sqrt{3}}$ 34. _____

35. $\frac{2}{3}(x-1)+\frac{1}{4}x=10$ 35. _____

36. $(x-3)(x+2)=14$ 36. _____

37. $\frac{x-2}{x+2}+\frac{4}{x+2}+4=0$ 37. _____

38. $x^4+x^2-6=0$ 38. _____

39. $2\sqrt{x}-\sqrt{2x+1}=1$ 39. _____

40. $|3x-1|=7$ 40. _____

41. $-3\le 2(x+4)<14$ 41. _____

42. $\frac{2}{x}>\frac{5}{x+6}$ 42. _____

43. $2x^2+5x>12$ 43. _____

44. $|x-15|\ge 5$ 44. _____

45. Simplify 45. _____
$$\frac{3x^2+5x-2}{2x^2+x-6}$$

46. After working for x hours together on a carpentry job, two workers have done fractional parts of the job equal to $\frac{x}{4}$ and $\frac{2x}{7}$, respectively. What part of the job has been completed? What fractional part of the work that has been completed was done by the first worker? 46. _____

47. The positions of two boats on a lake are given by the coordinates (-2, 5) and (6, 0), where x and y are measured in miles. Find the distance between the boats, and the coordinates of the point that is halfway between them. 47. _____

Name:_____

Summer Bridges for students entering PreCalc/Trig Honors

Define each word and give a mathematical example

Conjugate

Rational Exponent

Complex Fraction

Equivalent Equations

Extraneous Solutions

Linear Inequality

Distance Formula

Midpoint Formula

Slope

Slope-intercept Form\

Point-Slope Form

Function

Independent variable

Dependent Variable

Function Notation

Zeros of a function

Relative Minimum

Relative Maximum

Even Function

Odd Function

Composition of Functions

Directly proportional

Constant of variation

Inversely Proportional

Jointly Proportional

Polynomial Function

Quadratic Function

Parabola

Axis

Vertex

Standard form of a quadratic function

Continuous

Repeated Zero

Synthetic division

Complex number

Imaginary number

Vertical and Horizontal asymptote

Exponential function f with base a

Natural base e

Natural exponential function

Logarithmic function with base a

Common logarithmic function

Natural logarithmic function

Trigonometry

Angle

Degree

Unit Circle