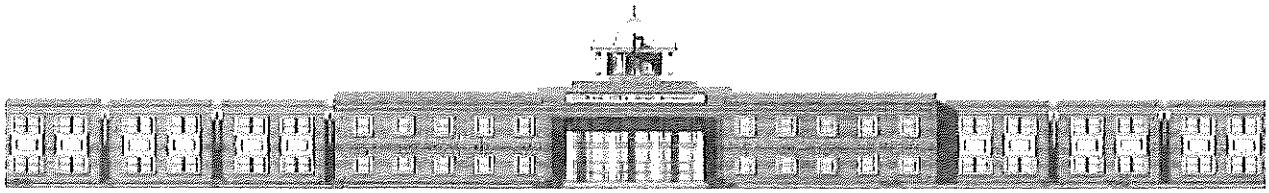


Ocean City High School
Summer Assignment 2022

Course	Honors Pre-Calculus	**Teacher**	Wendy McNally/Elizabeth Clarke
Email	wmcnally@ocsdnj.org eclarke@ocsdnj.org	**Due Date**	First day of classes September 2022
Standards	A-APR.1-3, A-APR.7-9, , A-SSE.2-3, A-REI.2-6, A-REI.10, A-REI.12, A-CED.2, F-LE.1, F-IF.1-2, F-IF.7, F-BF.1, F-BF.3-4, N-CN.1-3, N-CN.7-9, N-RN.2		
Topic	Algebra Review		
Purpose	Reinforce and master the Algebra skills necessary for Honors Pre-Calculus		
Text/Novel(s) & Brief Description	Any Algebra 2 textbook or Algebra tutorial website such as FlippedMath, Khan Academy, or EdPuzzle		
Approximate Time on Task	8 hours		
Suggested Timeline	1 hour per week throughout the months of July and August		
How It Will Be Assessed	Content will be reviewed during the first week of classes and questions/concerns will be addressed.		

Honors Pre-Calculus

Summer 2022 Review Assignment

Mrs. McNally/Mrs. Clarke

This is an assignment for students who will be entering Honors Pre-Calculus in the fall. These problems cover most of the concepts taught in the Algebra I and Algebra II courses which students are expected to ***know*** to do well in this Honors course. It is **very** important to master these skills because they will be applied throughout the course. We highly recommend each student work on these problems independently throughout the summer and come prepared for the Honors Pre-Calculus class. Since the students have taken Algebra, they are expected to have the necessary background and skills required to solve these problems.

Parents are requested to see that this assignment is completed seriously to ensure success of their child in the Honors Pre-Calculus class.

An answer key (with all work) will be given out on the first day of class for you to check your answers.

If you have any questions please email your assigned teacher at:

wmcnally@ocsdnj.org

or

eclarke@ocsdnj.org

Enjoy your summer!!

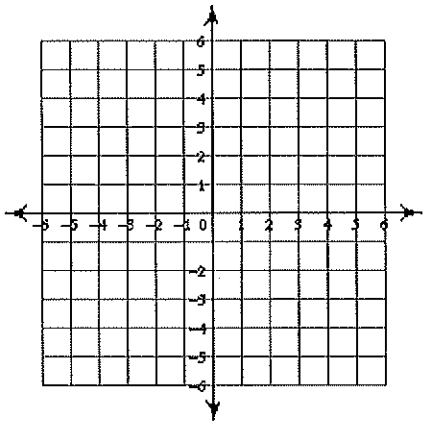
Name_____Period_____

Honors Pre-Calculus

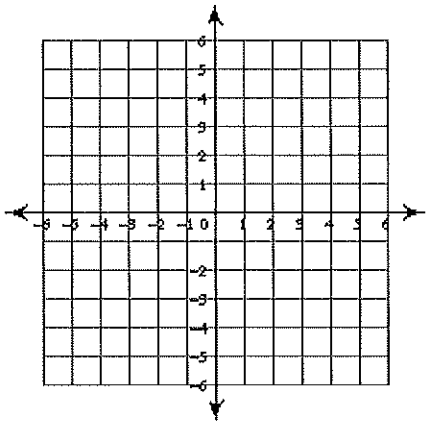
Summer 2022 Assignment

Graph each equation.

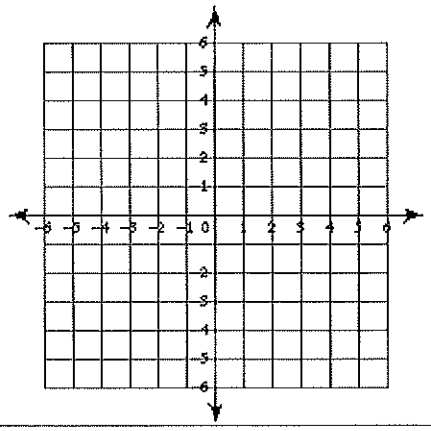
1) $y = |x+3| - 4$



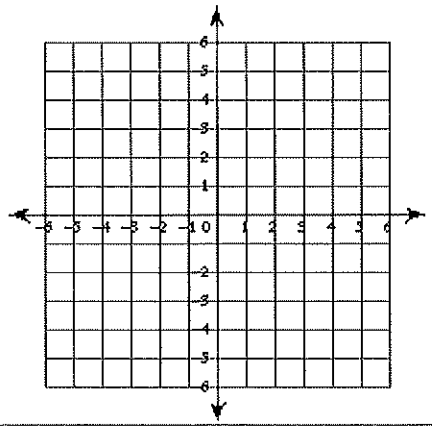
2) $y = |x+2| - 1$



3) $y = |x+2| + 3$



4) $y = -|x-1| + 2$



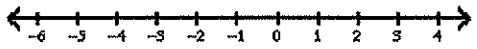
Solve each equation.

5) $\left|-8-9b\right|-5=39$

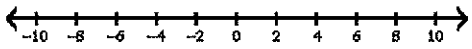
6) $-10-\left|10n+8\right|=-78$

Solve each inequality and graph its solution.

7) $-1+\left|-4v-4\right|<7$



8) $\left|7x-1\right|+9>59$



Solve each equation by completing the square.

9) $x^2+6x+6=0$

10) $6a^2-12a-93=-3$

Simplify each expression.

11) $\dfrac{\frac{x}{2}-\frac{3}{2}}{\frac{x}{9}-\frac{2}{3}}$

12) $\dfrac{\frac{u}{4}-\frac{3u-1}{16}}{\frac{3u-1}{u-4}+\frac{3u-1}{4}}$

Find the discriminant of each quadratic equation then state the number and type of solutions.

13) $-14n^2 + 10n = -11$

14) $2x^2 + 9x - 15 = 13x - 3$

Divide.

15) $(m^3 + 4m^2 + 2m - 1) \div (m - 1)$

16) $(r^3 - r^2 - 37r + 36) \div (r + 6)$

17) $(6x^5 + 28x^4 - 46x^3 + 6x^2 - 40x + 15) \div (6x - 2)$

Simplify.

18) $\dfrac{4\sqrt{8}}{\sqrt{25}}$

19) $\dfrac{4}{3 - 3\sqrt{2}}$

20) $\dfrac{2}{5 + 4\sqrt{3}}$

Simplify each expression.

21) $\dfrac{x^2+11x+24}{x+3}\cdot\dfrac{x-8}{x+8}$

22) $\dfrac{n-6}{2n+6}\div\dfrac{n-6}{2n+16}$

Simplify each and state the excluded values.

23) $\dfrac{20a-20}{15a-15}\cdot\dfrac{6a-15}{2a-5}$

24) $\dfrac{16k+8}{25k+30}\div\dfrac{16k+8}{15k+18}$

Solve each equation.

25) $-12(10-2x)=-6-3(6-4x)$

26) $-6x-10=3(x-8)-9(x+8)$

Solve each equation by factoring.

27) $n^2-36=0$

28) $m^2=-12m-35$

29) $-2p^2+13p+12=-5p^2$

30) $180x^2-287=-7-45x+5x^2$

Solve each equation with the quadratic formula.

31) $9b^2 = 10$

32) $7n^2 = -6n - 7$

Solve each equation. Remember to check for extraneous solutions.

33) $\sqrt{n+4} = 7$

34) $8 = \sqrt{4b}$

35) $\sqrt{x} - x = -6$

36) $1 = -v + \sqrt{13 - 2v}$

37) $6 = \frac{v+7}{v} + \frac{4}{v}$

38) $\frac{6x^2 + 12x - 210}{x^2 - 4x - 12} + \frac{1}{x-6} = \frac{6x^2 - 12x - 288}{x^2 - 4x - 12}$

Factor each completely.

39) $25x^3 + 20x^2 + 5x + 4$

40) $15a^3 + 5a^2 + 9a + 3$

41) $5p^3 - 7p^2$

42) $10r^2 + 82r - 72$

43) $-24v^3 + 48v^2 + 30v$

44) $6r^3 - 7r^2 + 2r$

45) $x^4 - 3x^2$

46) $7x^5 - 31x^3 + 30x$

47) $64x^2 - 49$

48) $9n^2 - 42n + 49$

49) $-256x^4 - 108x$

50) $8m^4 + 27m$

Evaluate each function.

51) $f(n) = 3n + 1$; Find $f(2y)$

52) $f(x) = x - 5$; Find $f(3x)$

State if the given functions are inverses.

53) $g(x) = x + 2$
$f(x) = x - 2$

54) $h(x) = -4x + 1$
$f(x) = -\frac{2}{7}x - \frac{15}{7}$

Find the inverse of each function.

55) $f(x) = -2 + (x + 1)^3$

56) $f(n) = \sqrt[5]{n + 2} - 2$

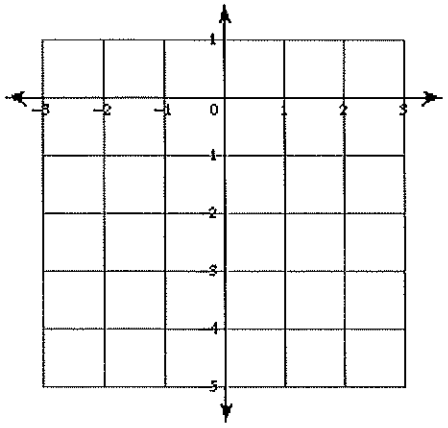
Perform the indicated operation.

57) $g(n) = n^2 + 4$
$h(n) = -3n + 1$
Find $g(2) - h(2)$

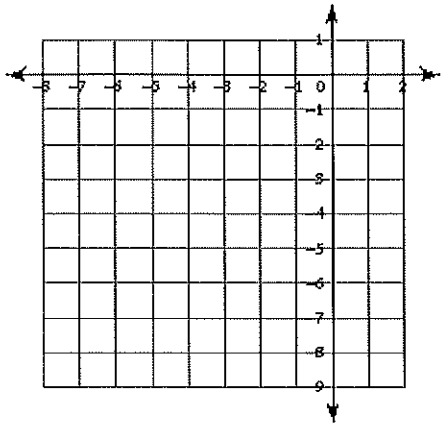
58) $f(x) = -3x^2 + 5$
$g(x) = 2x + 2$
Find $(f \circ g)(-3)$

Sketch the graph of each function.

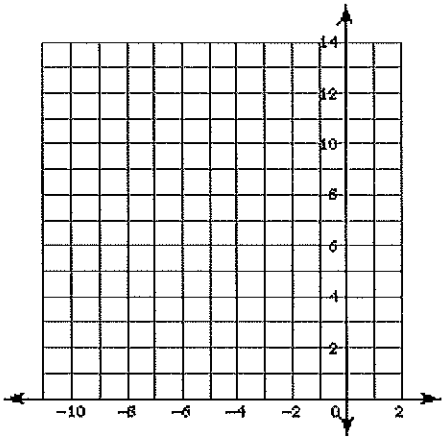
59) $y = -x^2$



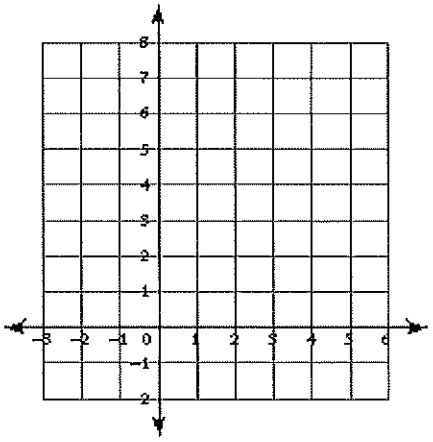
60) $y = -2x^2$



61) $y = 3x^2 + 24x + 49$

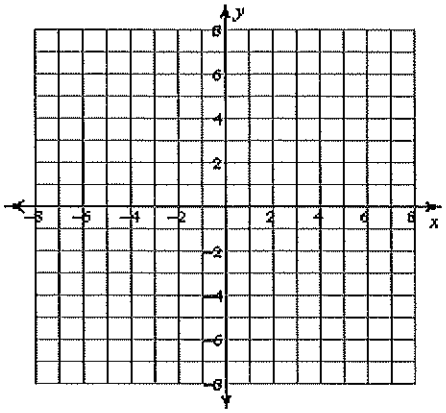


62) $y = 2x^2 - 16x + 31$

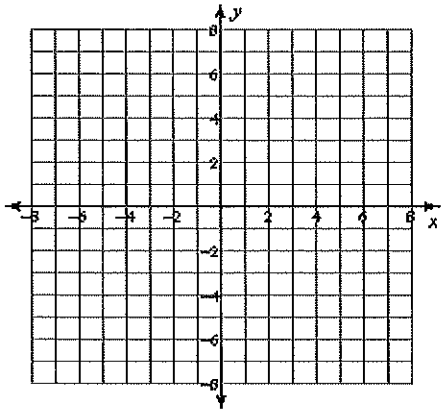


Graph each function.

63) $f(x) = \dfrac{2}{x-3} - 1$

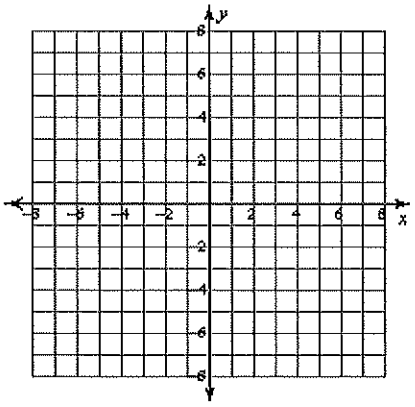


64) $f(x) = \dfrac{3}{x-2} - 1$

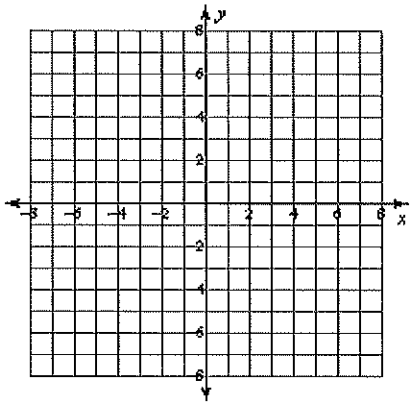


Identify the holes, vertical asymptotes, and horizontal asymptote of each. Then sketch the graph.

65) $f(x) = \dfrac{x^2 + x - 2}{4x}$



66) $f(x) = \dfrac{x^3 + 2x^2 - 8x}{4x^2 - 12x}$



Evaluate each function at the given value.

67) $f(n) = -n^4 - 9n^3 - 15n^2 + 13n + 16$ at $n = -3$

68) $f(x) = x^4 - 4x^2 + 12x - 1$ at $x = -3$

Find all roots.

69) $x^3 + 6x^2 + 18x = 0$

70) $x^4 - 5x^3 + 4x^2 = 0$

State the number of complex roots, the possible number of real and imaginary roots, and the possible rational roots for each equation. Then find all roots.

71) $x^5 - 2x^4 + 11x^3 - 22x^2 + 28x - 56 = 0$

72) $x^5 + 2x^4 + 7x^3 + 14x^2 + 12x + 24 = 0$

73) Flying to Cleveland with a tailwind a plane averaged 330 km/h. On the return trip the plane only averaged 308 km/h while flying back into the same wind. Find the speed of the plane in still air and the speed of the wind.

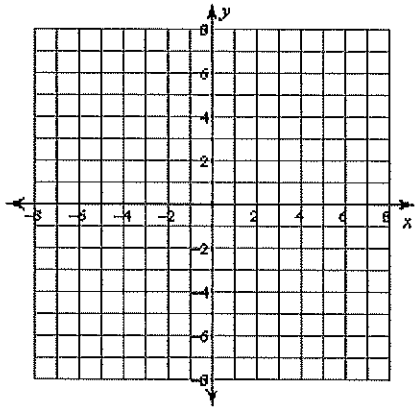
74) The school that Stephanie goes to is selling tickets to a fall musical. On the first day of ticket sales the school sold 2 senior citizen tickets and 7 student tickets for a total of $44. The school took in $76 on the second day by selling 6 senior citizen tickets and 7 student tickets. What is the price each of one senior citizen ticket and one student ticket?

75) The senior classes at High School A and High School B planned separate trips to the water park. The senior class at High School A rented and filled 1 van and 4 buses with 194 students. High School B rented and filled 6 vans and 2 buses with 152 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

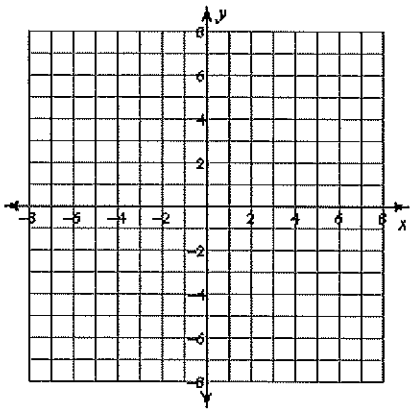
76) The county fair is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 6 vans and 3 buses with 201 students. High School B rented and filled 3 vans and 11 buses with 452 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

Identify the domain and range of each. Then sketch the graph.

77) $y = \sqrt{x+5}$



78) $y = 2 + \sqrt{x}$



Simplify. Your answer should contain only positive exponents.

79) $(x^2 \cdot -x^3y^5)^{-5} \cdot -x^0y^{-3}$

80) $-m^5n^4 \cdot (m^5n^2)^2$