Pre-Calculus CP
Summer Assignment

Overview:

The following assignment contains concepts that are previously covered in prior math courses that are relevant to your up-coming Pre-Calculus class.

This assignment will not be collected nor graded. The assignment should be used as a tool to recall past concepts and to stay fresh with the accurate steps to a successful year in pre-calculus!!! If you need help please feel free to use Khan Academy or AI resources like photo math to help refresh your memory.

The key will be provided to you on day 1 and you will have day 1 and day 2 to ask any questions that may need clarity. Day 3 you WILL have a pre skills test on the algebra 2 concepts from the summer assignment.
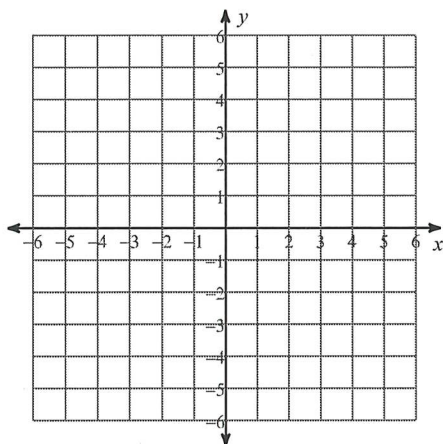
Day 4 we start section 1-1 interval notation☺

Have a great summer!!!! See you soon!!!!!

Name_____ ID: 1

College Prep
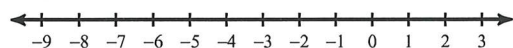
Date_____ Period____

Graph each equation.

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

Solve each inequality and graph its solution.
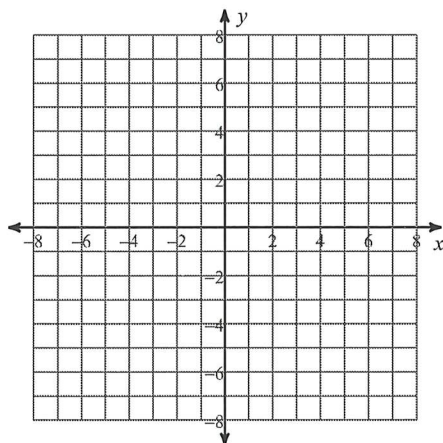
2) $|9 + 2m| \leq 3$

Simplify.

3) $(8 + 6i)^2$

4) $(2 + 2i) - (8i) + 3$

Identify the vertex, axis of symmetry written as an equation of a line, name one extra point, and state if there is a max or min value. Name the type of form the quadratic is in Hint: Standard, Vertex, or Intercept. Then sketch the graph.

5) $y = -(x + 6)(x + 4)$

Simplify each expression.
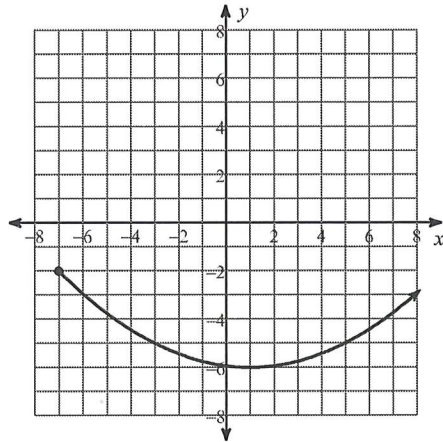
6) $-4(10 + 3r) - 8(r - 3)$

Divide.

7) $(p^3 + 7p^2 - 10p - 14) \div (p - 2)$
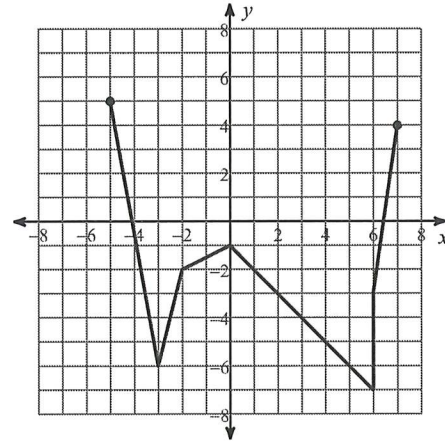
Simplify.

8) $\dfrac{4\sqrt{10}}{\sqrt{9}}$

Each graph represents a relation. Determine if the relation is a function.

9)

10)

Solve each equation.

11) $25^{-2x} = 625^{-x}$

12) $\left(\dfrac{1}{125}\right)^{-3v} = 25$

Solve each equation. Round your answers to the nearest ten-thousandth.

13) $10^{x+4} - 1 = 26$

Solve each equation.

14) $10^{a+8} + 6 = 29$

15) $\log\left(p^2 + 4\right) = \log\left(3p + 2\right)$

Find all roots.

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

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

Solve each equation by factoring.

18) $n^2 + 15 = -8n$

19) $p^2 = 5p$

20) $x^2 - 11x = -24$

21) $x^2 + 30 = -11x$

Solve each equation by taking square roots.

22) $16a^2 - 6 = 19$

Solve each equation with the quadratic formula.

23) $3n^2 - 75 = 0$

Solve each equation. Remember to check for extraneous solutions.

24) $6 = \sqrt{x + 9}$

25) $\sqrt{3m - 21} = \sqrt{29 - 2m}$

Solve each equation.

26) $2 = (x - 16)^{\frac{1}{5}}$

27) $1283 = 5(16 - 2b)^{\frac{4}{3}} + 3$

Simplify. Your answer should contain only positive exponents.

28) $4yx^4 \cdot x^3y^4 \cdot y^4$

29) $2y^3 \cdot \left(yx^3\right)^{-1}$

Evaluate each function.

30) $h(t) = 3t^2 - 4t$; Find $h(-5)$

Evaluate each function for the given value.

31) $f(x) = -3x - 1$; Find $f(-2)$

Perform the indicated operation.

32) $g(x) = -2x - 1$
$f(x) = x^2 + 1$
Find $(g + f)(x)$

33) $g(n) = n^2 + 2$
$f(n) = 2n - 4$
Find $(g - f)(n)$

34) $g(x) = -x$
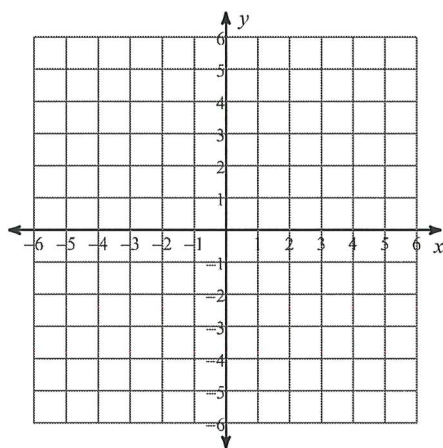$h(x) = x + 2$
Find $(g \cdot h)(x)$

35) $g(a) = 4a + 3$
$f(a) = -2a - 4$
Find $\left(\dfrac{g}{f}\right)(a)$

36) $h(a) = -4a - 1$
$g(a) = a^3 + 2a^2$
Find $(h \circ g)(a)$

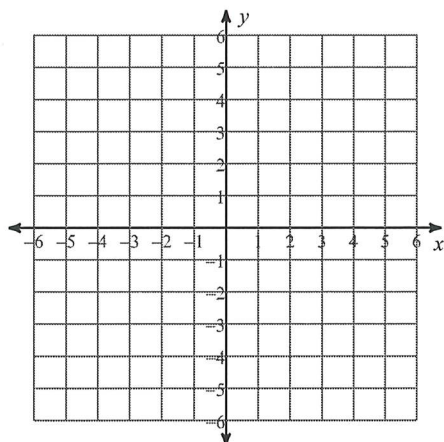37) $f(a) = a - 1$
$g(a) = 3a - 1$
Find $(f \circ g)(x + 2)$

**Sketch the graph of each line.**

38) $3x + y = -5$

Sketch the graph of each linear inequality.

39) $y \leq -2x - 3$

State the maximum number of turns the graph of each function could make, state the end behavior and state the numbers of zeros. List all possible zeros (+/- p/q) find the x and y intercepts then sketch the graph. Approximate the relative or absolute minima and relative or absolute maxima to the nearest tenth.

40) $f(x) = x^3 - 2x^2 - 1$
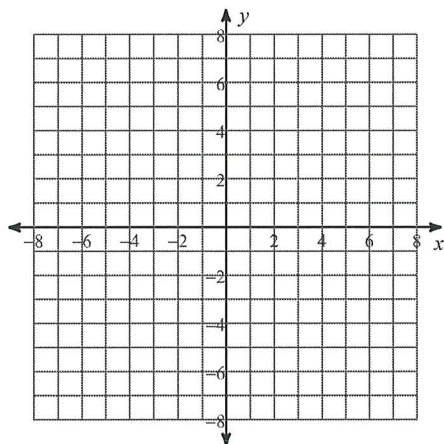
Solve each system by any method you would like - show all work.

41) $y = \dfrac{1}{2}x + 3$

$\quad\ y = -\dfrac{3}{2}x - 1$

Use a calculator to approximate each to the nearest thousandth.

42) $\log_2 4$

43) $\log_7 4.235$

Condense each expression to a single logarithm.

44) $6\log_8 u - 18\log_8 v$

45) $\dfrac{\log_7 u}{2} + \dfrac{\log_7 v}{2} + \dfrac{\log_7 w}{2}$

Expand each logarithm.

46) $\log_7 \dfrac{x^2}{y^5}$

47) $\log_9 \left(8^5 \cdot 3\right)^2$

Evaluate each expression.

48) $\log_6 \dfrac{1}{36}$

49) $\log_5 25$

Rewrite each equation in exponential form.

50) $\log_2 16 = 4$

Find each product.

51) $(5n - 2)(3n - 7)$

Simplify.

52) $-3\sqrt{3}\left(3\sqrt{2} + 3\right)$

Evaluate each expression.

53) $5 - 3 + 2$

Describe the end behavior of each function.

54) $f(x) = x^4 - 3x^2 - 3x$

Write each expression in exponential form.

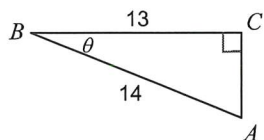55) $\left(\sqrt[5]{a}\right)^4$

Divide by the long division method.

56) $\left(x^3 + 4x^2 - 3x + 64\right) \div (x + 6)$

Divide by the synthetic method.

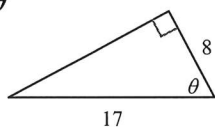57) $\left(k^3 + 11k^2 + 33k + 21\right) \div (k + 4)$

Find the measure of each angle indicated. Round to the nearest tenth.

58)

Find the value of the trig function indicated.

59) $\csc \theta$

60) $\sin \theta$

 M a d e w i t h I n f i n i t e A l g e b r a 2 .