Name: _____ Pre-Calculus

Intro to Pre-Calculus Summer Assignment

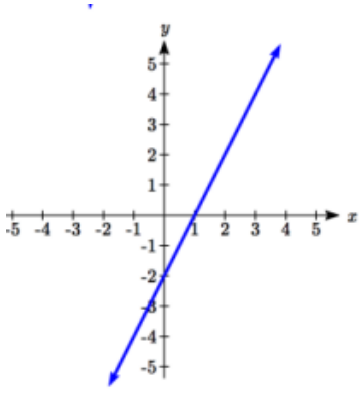
Complete all problems below. You may use any outside resources that you need. This will be due the first week of academic classes for you, so be prepared to hand it in before Labor Day. Please reach out to me at ciavarone@daviestech.org with any questions! Show all necessary work. This will count as an assessment grade.

1. Determine if each set represents a function. State yes or no

$\{(a,b), \quad (c,d), \quad (a,c)\}$

$\{(a,b),(b,c),(c,c)\}$

2. State if the graph represents a function. How do you know?

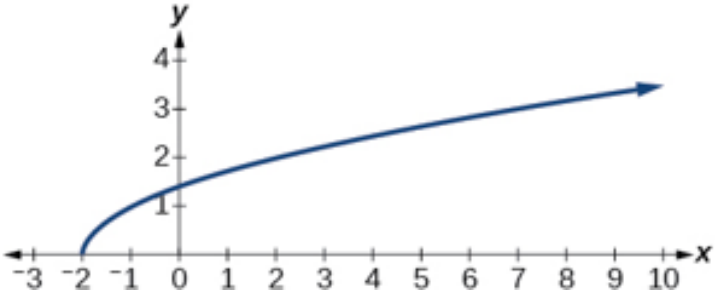


3. Express y as function of x:
$3x^2 + y = 14$

4. Given $f(x) = 2x - 5$, evaluate:
$f(-3), f(a), f(a+h)$

5. Given the graph,
a) Evaluate $f(-1)$

b) Solve for $f(x) = 3$



Intro to Pre-Calculus Summer Assignment Continued

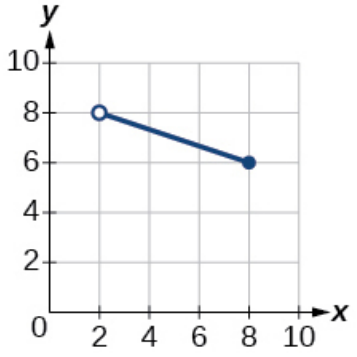
6. Let $h(t)$ be the height above ground, in feet, of a rocket t seconds after launching. Explain the meaning of each statement:
   1. $h(1) = 200$
   2. $h(2) = 350$

7. Given $f(x)$ *and* $g(x)$, find:

$f(x) = 3x - 2$
$g(x) = 5 - x^2$

$3f(1) - 4g(-2)$

8. State the domain and range using interval notation.



9. State the domain using interval notation $f(x) = 5 - 2x^2$

10. Find $f(g(x))$ and $g(f(x))$ given the following functions.

$$f(x) = x^2 + 1, \quad g(x) = \sqrt{x+2}$$

11. Solve for x in the absolute value equation.

$$3|5 - x| = 5$$

12. Find $f^{-1}(x)$ for the function:

$$f(x) = x + 3$$

Intro to Pre-Calculus Summer Assignment
Continued

13. Find the degree and leading coefficient of:

$$-2x^2 - \quad 3x^5 + \quad x - 6$$

14. Determine the end behavior for the function:

$$f(x) = -2x^4 - \quad 3x^2 + \quad x - 1$$

15. Find the axis of symmetry and the vertex for the quadratic function:

$$f(x) = x^2 - 12x + 32$$

16. Solve using the Quadratic Formula. Simplify completely.

$$x^2 + 2x + 5 = 0$$

17. Perform the indicated operation

$$(3 + 2i) + (5 - 3i)$$

18. Perform the indicated operation

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

19. Perform the indicated operation. Simplify completely.

$$\frac{-5+3i}{2i}$$

20. Simplify completely

$$2\sqrt{48}$$

Intro to Pre-Calculus Summer Assignment
Continued: Additional Algebra 2 Topics

21. Solve the equation by completing the square. Simplify completely.

$$x^2 + 10x = 11$$

22. Solve the equation using square roots. Simplify completely.

$$2(x-4)^2 + 2 = 102$$

23. Solve by factoring.

$$16y^2 - 8 = 1$$

24. Solve by factoring.

$$x^2 - 2x - 8 = 0$$

25. Simplify completely.

$$\frac{8}{\sqrt{2}+6}$$

26. Solve for x.

$$5(4x-1)^{\frac{1}{3}} - 9 = 6$$

27. Simplify

$$(3y - 5)(2y - 7)(4y + 1)$$