

Pre-Calculus Summer Assignment

The following worksheets represent your first week of work for Pre-Calculus. It should all be review of topics you learned in Advanced Algebra except for the last page which is a little more challenging. If you do not remember how to do some of these problems, watch a video on [khanacademy.org](https://www.khanacademy.org) (Algebra section) or a youtube video to help you remember the curriculum. If you have any questions please contact Laurie at lhailer@tamdistrict.org

This packet is **due on the first day of math class** which will be the week of August 26th

Pre-Calculus

Name: _____

Assignment #1 - Sections 1.3 and 1.4 Solving Equations and Lines

Solve the following equations. Show your steps!!

1. $7 - (4x - 3) = 2(x + 4)$	2. $4x - 2(5x - 3) = 3(x - 1) + 7x$
3. $\frac{x+1}{3} + \frac{x+2}{7} = 5$	4. $\frac{2x+1}{3} + 16 = 3x$
5. $\frac{2x}{x+3} - 1 = \frac{x}{x-2}$	6. $\frac{2}{x+2} - \frac{3}{x-1} = \frac{-2}{3}$
7. $(x+7)(x-1) = (x+1)^2$	8. $3x^2 = 4x + 4$

9. $5x^2 - 6 = -13x$	10. $x^3 + 2x^2 - 9x - 18 = 0$
11. $\sqrt{x-2} = 3\sqrt{x+2}$	12. $\sqrt{3x-2} = x-2$

Find an equation for the line with the given properties.

Express your answer in slope/intercept form $y = mx + b$

13. Slope = 2; containing the point (4, -3)	14. Slope = $-\frac{2}{3}$; containing the point (1, -1)
15. Containing the points (-3, 4) and (2, 5)	16. x-intercept = 2; y-intercept = -1
17. Horizontal; containing the point (-3, 2)	18. Vertical; containing the point (4, -5)
19. Parallel to the line $y = -3x + 2$; containing the point (-1, 2)	20. Parallel to the line $2x - 3y = -4$; containing the point (-5, 3)
21. Perpendicular to the line $y = 2x - 3$; containing the point (1, -2)	22. Perpendicular to the line $3x - y = -4$; containing the point (-2, 4)

Pre-Calculus
Assignment #2 – Section 2.1 Functions

Name: _____

Find the following values for each function.

<p>1. $f(x) = -2x^2 + x - 1$</p> <p>a) $f(0) =$</p> <p>b) $f(-1) =$</p> <p>c) $f(-x) =$</p> <p>d) $-f(x) =$</p> <p>e) $f(x+1) =$</p> <p>f) $f(2x) =$</p>	<p>2. $f(x) = \frac{x^2 - 1}{x + 4}$</p> <p>a) $f(0) =$</p> <p>b) $f(-1) =$</p> <p>c) $f(-x) =$</p> <p>d) $-f(x) =$</p> <p>e) $f(x+1) =$</p> <p>f) $f(2x) =$</p>
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Find the domain of each function.

<p>3. $f(x) = \frac{2x}{x^2 - 4}$</p>	<p>4. $f(x) = \frac{x + 4}{x^3 - 4x}$</p>	<p>5. $f(x) = \sqrt{3x - 12}$</p>
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Find the following values for the given functions.

<p>6. $f(x) = 2x^2 + 3$ and $g(x) = 4x^3 + 1$</p> <p>a) $(f + g)(x) =$</p> <p>b) $(f - g)(x) =$</p> <p>c) $(f \cdot g)(x) =$</p> <p>d) $(f + g)(3) =$</p> <p>e) $(f - g)(-4) =$</p>	<p>7. $f(x) = 1 + \frac{1}{x}$ and $g(x) = \frac{1}{x}$</p> <p>a) $(f + g)(x) =$</p> <p>b) $(f - g)(x) =$</p> <p>c) $(f \cdot g)(x) =$</p> <p>d) $(f + g)(3) =$</p> <p>e) $(f - g)(-4) =$</p>
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Find the difference quotient using the equation $\frac{f(x+h) - f(x)}{h}$ $h \neq 0$. (example below)

Example: $f(x) = x^2 - x + 4$ $f(x+h) = (x+h)^2 - (x+h) + 4$
 $= x^2 + 2xh + h^2 - x - h + 4$

Therefore, $\frac{f(x+h) - f(x)}{h} = \frac{x^2 + 2xh + h^2 - x - h + 4 - (x^2 - x + 4)}{h}$

$$= \frac{2xh + h^2 - h}{h} = 2x + h - 1$$

The answer is $2x + h - 1$

8. $f(x) = -3x + 1$

9. $f(x) = x^2 + 5x - 1$

10. $f(x) = 4x^2 + 5x - 7$