

Pre-Calculus Summer Assignment Key Answers Only

1. $x = \frac{13}{3}$	2. $x = \frac{1}{15}$	3. $x = 3, -2$	4. $x = \frac{5}{3}, 2$
5. $x = \pm 3$	6. $x = 0, -5$	7. $x = 0, 2$	8. $x = 10, -1$
9. $x = -3, -4$	10. $x = \frac{3}{2}, -1$	11. $x = 2 \pm \sqrt{7}$	12. $x = -3 \pm i\sqrt{3}$

13. i) Equal ii) Opposite-Reciprocal iii) Zero iv) Undefined	14. i) Slope-intercept form: $y = mx + b$ ii) Standard form: $Ax + By = C$, A has to be a positive whole number iii) Point-Slope form: $y - y_1 = m(x - x_1)$
15. $y = \frac{2}{3}x - 4$; $2x - 3y = 12$	16. $y = \frac{5}{2}x + 6$; $5x - 2y = -12$
17. $y = \frac{5}{2}x - \frac{23}{2}$; $5x - 2y = 23$	18. $y = -\frac{1}{2}x + \frac{3}{2}$; ...
19. $y = 7$	20. $x = 4$
21. $y = \frac{1}{2}x - 5$; $x - 2y = 10$	22. $y = -\frac{3}{2}x + 3$; $3x + 2y = 6$
23. Set y equal to 0.	24. Set all x's equal to 0.
25. Yes, infinitely many.	26. No, will fail the vertical line test / will not be a function.
27. x-int: (3,0) y-int: (0,9)	28. x-int: (3,0), (-1,0) y-int: (0,-3)
29. x-int: (-3,0), (0,0) y-int: (0,0)	30. x-int: (3,0), (1,0) y-int: (0,1)
31. no x-ints y-int: (0,4)	32. x-int: (3,0) y-int: (0,-3)

33. $f(-3) = 0$	34. ...	35. $f(-3) = 4$	36. $f(-3) = -49$	37. $f(-3) = -1$	38. $f(-3) = -1$
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39. a) When $x=2, y=0$ b) (2, 0) c) x-intercept d) Crosses x-axis when graphed

40. $6x^2 - 6x - 5$	41. $2x^2 - 10x + 9$	42. $6x^3 - 20x^2 + 19x - 4$	43. $6x^2 - 12x - 1$
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44. ...	45. 127	46-50. You must be able to graph basic functions: linear, quadratic, radical, rational
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51. The point of intersection of their graphs	52. The graphs will never intersect (may be parallel)
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53. (-3, -11)	54. (3, 7)	55. $(-\frac{12}{7}, -\frac{11}{7})$	56. $b = \frac{z - ax}{y}$
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57. $b = \frac{y}{x-1}$	58. $b = \frac{y-ax}{x-3}$	59. $\frac{1}{3}$	60. $\frac{1}{16}$	61. $\frac{1}{x^5}$
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62. 4	63. x^2	64. $16x^4$	65. 81	66. 625
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67. Step 1: Change all x 's to y 's and the y to an x
 Step 2: Solve for y in the new equation
 Step 3: Once the y is isolated, rewrite the equations by changing the y to $f^{-1}(x)$

68. $f^{-1}(x)$

69. Symmetric with respect to the line $y = x$.
 (x, y) on $f(x)$ will be (y, x) on $f^{-1}(x)$.
 Domain of $f(x)$ is the range of $f^{-1}(x)$, and the range of $f(x)$ is the domain of $f^{-1}(x)$.
 $f(f^{-1}(x)) = x$ and $f^{-1}(f(x)) = x$.

70. $f^{-1}(x) = \frac{2(x-2)}{-3}$	71. $f^{-1}(x) = \frac{(x-4)^3 + 1}{2}$	72. $f^{-1}(x) = \sqrt{\frac{3(x+5)-2}{7}}$	73. $2\sqrt{10}$
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74. $3\sqrt{5}$	75. $-i$	76. $-i$	77. $3+4i$	78. $\frac{3}{4} - \frac{1}{2}i$
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80. $\frac{3}{5} + \frac{1}{5}i$	81. -4	82. $\frac{-\sqrt{3}}{2}$	83. $\frac{-\sqrt{3}}{2}$	84. $\frac{-\sqrt{3}}{3}$
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85. $\frac{-\sqrt{3}}{3}$	86. $-\sqrt{2}$	87. ...	88. $\frac{9(x-3)}{2(x-6)}$	89. $(x-3)(x^2 + 3x + 9)$	90. ...
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Must Know Formulas (Memorized!!!!!!!!!!!!!!!!!!!!):

Quadratic Formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Slope Formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Distance Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Midpoint Formula: $M = \left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2} \right)$