

MAT 1340: Writing Project #2 ¹⁰/₅₀

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1. $g(x) = 5\sqrt{3x-21} - 2$ $y = 5\sqrt{3y-21} - 2$ $x = 5\sqrt{3y-21} - 2$ $5\sqrt{3y-21} - 2 = x$
 $5\sqrt{3y-21} = x+2$ $\sqrt{3y-21} = \frac{1}{5}x + \frac{2}{5}$ $3y-21 = \frac{1}{25}x^2 + \frac{4}{25}x + \frac{4}{25}$
 $75y - 525 = x^2 + 4x + 4$ $75y = x^2 + 4x + 529$ $75y = x^2 + 4x + 529$
 $y = \frac{1}{75}x^2 + \frac{4}{75}x + \frac{529}{75}$ $g^{-1}(x) = \frac{1}{75}x^2 + \frac{4}{75}x + \frac{529}{75}$

Too Dark!

2. $g(x) = -5\sqrt{3x-21} + 2$ $y = -5\sqrt{3y-21} + 2$ $x = -5\sqrt{3y-21} + 2$
 $-5\sqrt{3y-21} + 2 = x$ $-5\sqrt{3y-21} = x-2$ $\sqrt{3y-21} = \frac{1}{5}x + \frac{2}{5}$
 $3y-21 = \frac{1}{25}x^2 + \frac{4}{25}x + \frac{4}{25}$ $75y - 525 = x^2 + 4x + 4$ $75y = x^2 + 4x + 529$
 $75y = 529 + 4x + x^2$ $y = \frac{529}{75} + \frac{4}{75}x + \frac{1}{75}x^2$ $y = \frac{1}{75}x^2 + \frac{4}{75}x + \frac{529}{75}$
 $g^{-1}(x) = \frac{1}{75}x^2 + \frac{4}{75}x + \frac{529}{75}$

3. $g(x) = \frac{3}{(-2x+8)^3} + 5$ $y = \frac{3}{(-2y+8)^3} + 5$
 $\frac{3}{(-2y+8)^3} + 5 = x$ $\frac{3}{(-2y+8)^3} = x-5$ $3 = (x-5)(-2y+8)^3$
 $(x-5)(-2y+8)^3 = 3$ $(-2y+8)^3 = \frac{3}{x-5}$ $-2y+8 = \sqrt[3]{\frac{3}{x-5}}$
 $-2y = \sqrt[3]{\frac{3}{x-5}} - 8$ $y = \frac{\sqrt[3]{3x^2-30x+75} + 4}{2(x-5)}$ $y = \frac{\sqrt[3]{3x^2-30x+75} + 4}{2x-10}$
 $g^{-1}(x) = \frac{\sqrt[3]{3x^2-30x+75} + 4}{2x-10}$

4. $g(x) = \frac{3}{(-2x+8)^3} + 5$ $y = \frac{3}{(-2y+8)^3} + 5$
 $\frac{3}{(-2y+8)^3} = x-5$ $3 = (x-5)(-2y+8)^3$ $(x-5)(-2y+8)^3 = 3$
 $(-2y+8)^3 = \frac{3}{x-5}$ $-2y+8 = \sqrt[3]{\frac{3}{x-5}}$ $-2y = \sqrt[3]{\frac{3}{x-5}} - 8$
 $y = -\frac{\sqrt[3]{3x^2-30x+75} + 4}{2x-5}$ $y = \frac{\sqrt[3]{3x^2-30x+75} + 4}{2x-10}$ $g^{-1}(x) = \frac{\sqrt[3]{3x^2-30x+75} + 4}{2x-10}$

5. $g(x) = 5\sqrt[5]{3x+21} - 6$ $y = 5\sqrt[5]{3y+21} - 6$ $x = 5\sqrt[5]{3y+21} - 6$
 $5\sqrt[5]{3y+21} - 6 = x$ $5\sqrt[5]{3y+21} = x+6$ $\sqrt[5]{3y+21} = \frac{1}{5}x + \frac{6}{5}$
 $3y+21 = \frac{1}{25}x^5 + \frac{6}{5}x^4 + \frac{36}{25}x^3 + \frac{216}{125}x^2 + \frac{72}{25}x + \frac{7776}{15625}$
 $9375y + 46875 = x^5 + 46875$ $y = \frac{1}{9375}x^5 - 5$ $g^{-1}(x) = \frac{1}{9375}x^5 - 5$

6. $g(x) = 5(3x+21)^5 - 6$ $y = 5(3y+21)^5 - 6$ $x = 5(3y+21)^5 - 6$
 $5(3y+21)^5 - 6 = x$ $5(3y+21)^5 = x+6$ $(3y+21)^5 = \frac{1}{5}x + \frac{6}{5}$
 $3y+21 = \sqrt[5]{\frac{1}{5}x + \frac{6}{5}}$ $3y = \sqrt[5]{\frac{1}{5}x + \frac{6}{5}} - 21$ $y = \frac{\sqrt[5]{\frac{1}{5}x + \frac{6}{5}} - 7}{3}$ $g^{-1}(x) = \frac{\sqrt[5]{\frac{1}{5}x + \frac{6}{5}} - 7}{3}$

$$7. g(x) = 3(x+5) - 7 \quad y = 3(x+5) - 7 \quad 3(y+5) - 7 = x \quad 3y + 15 - 7 = x$$

$$3y + 8 = x \quad 3y = x - 8 \quad y = \frac{1}{3}x - \frac{8}{3} \quad g^{-1}(x) = \frac{1}{3}x - \frac{8}{3}$$

$$8. g(x) = 3(x+5)^2 - 7 \quad g(x) = 3x^2 + 30x + 68 \quad a=3, b=30 \quad x = \frac{-30}{2 \times 3}$$

$$g(x) = 3(x+5)^2 - 7, x=5 \quad g(-5) = -7 \quad (-5, -7)$$

$$9. g(x) = x^2 - 4x - 7 \quad a=1, b=-4 \quad x = \frac{-4}{2 \times 1} \quad x=2 \quad g(x) = x^2 - 4x - 7,$$

$$x=2 \quad g(2) = -11 \quad (2, -11)$$

$$10. g(x) = 4x^2 + 5x + 17 \quad a=4, b=5 \quad x = \frac{-5}{2 \times 4} \quad x = \frac{-5}{8} \quad g(x) = 4x^2 + 5x + 17, x = \frac{-5}{8}$$

$$g\left(\frac{-5}{8}\right) = \frac{247}{16} \quad \left(\frac{-5}{8}, \frac{247}{16}\right)$$

This was not the assignment.

Also,

In the future, dark/poor quality images and pictures of parts and tables will not be evaluated.

Please scan work to be submitted.

Thank you! ☺

+10