

MTH 161 WORKSHEET 2 CHAPTER 2 ALL SECTIONS

You should do this worksheet before you take the test. Use pencil and be neat so you can understand what you are doing. Use notes and book and any videos you find on YouTube. Contact me if you don't know how to attack any of the problems.

I. Find the equation of each line described. Answers must be in standard form: $Ax + By = C$. Remember no fractions, no decimals in your answers. The first term is positive. The exceptions to $Ax + By = C$ form are vertical and horizontal lines.

1. A line passing through the point $(2,4)$ and parallel to $5x + 6y = 7$.

2. A line passing through the point $(-1,3)$ and perpendicular to $11x + 2y = -13$.

3. A line passing through points $(-7,9)$ and $(3,2)$.

4. A line passing through points $(-8,3)$ and $(-8,-3)$.

II. Given: $f(x) = x + 2$ and $g(x) = \frac{-7}{x-6}$

5. Find the x 's for which $f(x) = g(x)$ HINT: Set the 2 equations equal to each other, cross multiply, and solve.

6. Find $g[f(x)]$

III. 7. Find the average rate of change of $f(x) = 2x^2 - 5$ over the x interval $[-1,5]$.

IV. Do these functions more: up or down by how much; left or right by how much; vertical stretch or vertical shrink by how much; upside down or right side up?

8. $f(x) = \frac{1}{2}(x + 7)^2$

9. $f(x) = -3|x - 2| + 5$

V. 10. Find the inverse of $f(x) = \frac{2x-1}{3x+3}$

VI. In this section the questions refer to the graph. Your answers must be in interval notation for each question. The exceptions are the zeros and the y intercept which will just be numbers.

DOMAIN

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RANGE

INCREASING

DECREASING

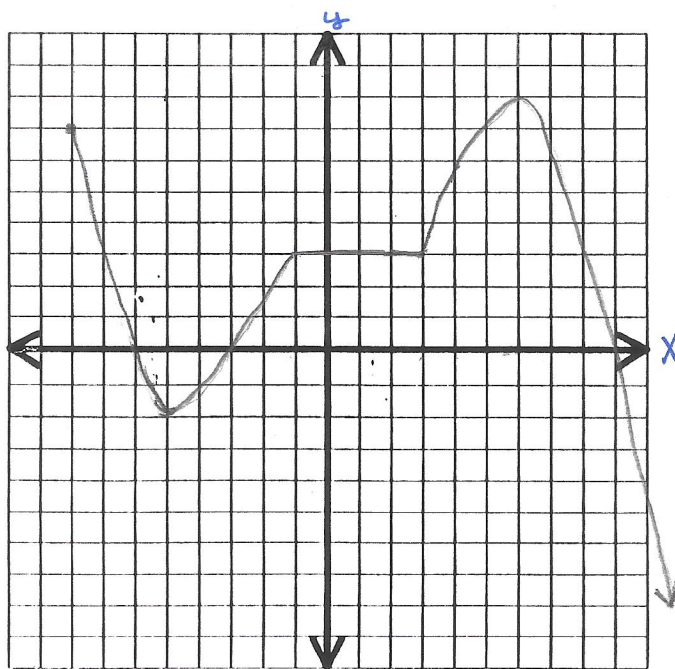
CONSTANT

$F(x) > 0$ (graph above x axis)

$F(x) < 0$ (graph below x axis)

ZEROS

YINTERCEPT



Range is the only interval notation answer expressed with respect to y-axis.

VII. Given: The piecewise function

$$f(x) = \begin{cases} x + 5 & \text{for } x \leq 2 \\ -x + 3 & \text{for } x > 2 \end{cases}$$

12. Evaluate $f(3)$

13. Evaluate $f(-2)$

14. Evaluate $f(2)$

VIII. Given: $f(x) = x^2 - x - 10$, $g(x) = 2x - 7$, $k(x) = \frac{4x-8}{3-2x}$

Evaluate or simplify

15. $(k \circ g)(x)$ simplify

16. $f[g(5)]$ evaluate

17. $f(2x-1)$ simplify

ANSWERS;

1. $5x-6y = 34$

2. $2x-11y = -35$

3. $7x+10y = 41$

4. $x = -8$

5. $x=5, x=-1$

6. $\frac{-7}{x-4}$

7. Avg. rate of change = 8

8. left 7, vertical shrink of $\frac{1}{2}$

9. right 2, up 5, upside down

Vertical stretch of 5

10. $f^{-1}(x) = \frac{-3x-1}{3x-2}$ or $\frac{3x+1}{2-3x}$

11. D: $[-8, \infty)$, R: $(-\infty, 8]$, Inc: $(-5, -1) \cup (3, 6)$, Dec: $[-8, -5) \cup (6, \infty)$

Constant $(-1, 3)$, Zeros: $x = -6, -3, 9$, y intercept: $y = 3$

12. 0 13. 3 14. 5

15. $\frac{8x-36}{17-4x}$

16. -4

17. $4x^2 - 6x - 8$

11. interval notation for $f(x) > 0$ $[-8, -6) \cup (-3, 9)$
 interval notation for $f(x) < 0$ $(-6, -3) \cup (9, \infty)$