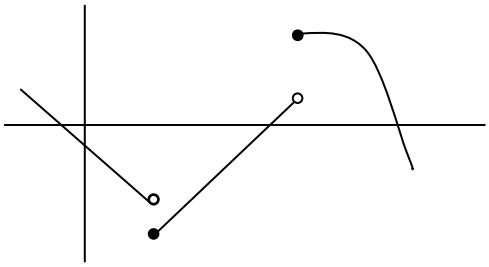
MATH115 PRECALCULUS 100pts TEST 2 FALL 2011 INSTRUCTOR: CARLA MORRIS

 NAME: _____

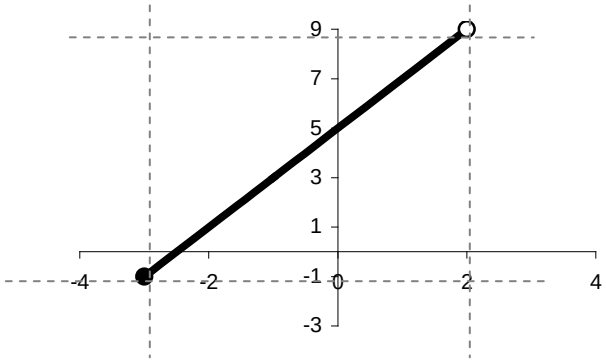
4pts 1. Graph $3x - 5y = 15$

4pts 2. If $f(x) = 4x^3 + 2x^2 + 3x$ find $f(2a)$

4pts 3. Is the following a function? Why or why not?



4pts 4. What is the domain and range for the function below?



4pts 5. If $f(x) = \begin{cases} 3x + 5 & x < 2 \\ x^3 + 2 & x \geq 2 \end{cases}$ determine f(-1) and f(4)

5pts 6. Given $f(x) = x^2 - 3x + 2$ find $\dfrac{f(x) - f(a)}{x - a}$

5pts 7. Given $f(x) = x^2 + 5x + 2$ find $\dfrac{f(x + h) - f(x)}{h}$

4pts 8. Find the equation of the line with slope 6 that passes through (5, 3)

4pts 9. Find the equation of the line passing through (2, 11/3) and (8, 5/3)

4pts 10. Are the lines $y = (3/2)x + 2$ and $3x - 2y = 6$ parallel, perpendicular, or neither? Explain your answer using slopes to guide you.

5pts 11. Graph $f(x) = (x - 1)^2 - 4$

5pts 12. Graph $f(x) = x^3 - 8$

5pts 13. Graph $f(x) = -|x + 2| + 7$

5pts 14. Graph $f(x) = [4x]$

15. Given $f(x) = 4x^4 + 5x^3 - 6x$ and $g(x) = 6x^4 - 2x^3 - 3$

4pts a) Find $(f + g)(x)$

4pts b) Find $(f \cdot g)(x)$

5pts c) Find $(f \circ g)(x)$

5pts 16. Find $f^{-1}(x)$ if $f(x) = 4x + 3$

5pts 17. Find $f^{-1}(x)$ if $f(x) = (5x + 3)^3 - 2$

4pts 18. Is the graph of $f(x) = x^3 - 8$ (problem12) one to one? Explain.

5pts 19. Find the equation of the circle centered at the origin with a diameter of 13 units.

6pts 20. Find the equation of the circle with endpoints of a diameter (6, 8) and (21, 16)

Some formulas you may need

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$ $y - y_1 = m(x - x_1)$

$(x - h)^2 + (y - k)^2 = r^2$ $y = mx + b$ $m_1 = m_2$

$m_1 = -1/m_2$ $2r = d$