

Math 125
Exam #1
Spring 2011

Name:

1. 10 pts. Find the distance between the points $P_1 = (2, -5)$ and $P_2 = (12, 3)$.

2. 10 pts. Find the intercepts for $9x^2 + 4y = 36$.

3. 10 pts. Solve $\frac{1}{x+1} - \frac{5}{x-4} = \frac{21}{4}$.

4. 10 pts. Find the equation of the line containing the points $(2, -5)$ and $(-6, -8)$, and write the equation in slope-intercept form.

5. 10 pts. Find the center and radius of the circle given by $x^2 + y^2 - x + 2y + 1 = 0$.

6. 10 pts. Given that $f(x) = \frac{x}{x^2 + 1}$, find $f(-1)$ and $f(c - 1)$.

7. 10 pts. each Find the domain of each function.

(a) $f(x) = \frac{3x}{x^2 - 36}$.

(b) $g(x) = \sqrt{3x - 12}$

(c) $f + g$, where f & g are as in 7a & 7b.

8. 5 pts. each Let $f(x) = 2x^2 - x - 1$.

(a) If $x = -2$, what is $f(x)$? What is the point on the graph of f ?

(b) If $f(x) = -1$, what is x ? What point(s) are on the graph of f ?

9. 10 pts. each Let

$$f(x) = \begin{cases} |x|, & \text{if } -3 \leq x < 0 \\ x^2, & \text{if } x > 0 \end{cases}$$

(a) Find the domain and range of f

(b) Sketch the graph of f

10. 10 pts. Find the function that is graphed after the following transformations are applied to the graph of $y = \sqrt{x}$: (1) Shift down 4 units; (2) reflect about the x -axis; (3) shift right 7 units.

11. 10 pts. A wire of length x is bent into the shape of a circle. Express the area of the circle as a function of x .

12. 10 pts. Given that $f(x) = \sqrt{x+1}$ and $g(x) = 3x$, find $(f \circ g)(4)$ and $(g \circ f)(2)$.

13. 10 pts. each Let $f(x) = \frac{x-5}{x+1}$ and $g(x) = \frac{x+2}{x-3}$.

(a) Find $f \circ f$.

(b) Find the domain of $g \circ f$.

(c) Find the domain of $f \circ g$.