

121-G12
Fall, 2012
Midterm

Name _____

1. Solve for x .

a. $\frac{2x - 6}{x} = \frac{x - 3}{x + 1}$.

b. $|x + 3| = 6$

c. $|x + 3| \leq 6$

5. Write the quadratic function $f(x) = x^2 + 6x + 5$ in the form $y = a(x - h)^2 + k$ and sketch its graph. Your graph should be “true to the essence of the parabola” and include the following points, clearly labeled as ordered pairs on the graph (and this is the last time I’m telling you how to label key points).
- Vertex
 - Any x - and y -intercepts
6. Write an equation of the line through the points $P(1, 6)$ and $Q(-3, 9)$. Express the equation in all three forms:
- Point-Slope
 - Slope-Intercept
 - Standard

7. Write an equation in point-slope form of the line through $P(4, 3)$ that is parallel to the line $y = \frac{3}{4}x + \frac{11}{97}$

8. Solve for x :

a. $2x^2 - 3x - 9 = 0$

b. $2x^2 - 3x - 9 \leq 0$

9. Let $f(x) = \frac{x+3}{x-8}$ and $g(x) = \sqrt{x+5}$.

a. What is the domain of f ?

b. What is the domain of g ?

c. What is $f \circ g$ and what is its domain?