This test has pages 1 through 5 – take a moment to check that you have them all.

Show work and answers.

No calculators, notes, or books.

1. Find an equation for the curve shown in the accompanying graph (with grid lines one unit apart).

2. Solve for $x$:

\[ \frac{x}{x^2 - 25} \geq 0 \]

Leave the answer in interval notation.
3 Let the function \( f \) be given by:

\[
f(x) = \begin{cases} 
1 - x & \text{if } -1 \leq x < 1 \\
x & \text{if } 1 \leq x \leq 2
\end{cases}
\]

(a) Compute \( f(5/4) - f(3/8) \)

(b) Graph \( f \).

4 Find an equation for the curve in accompanying graph. The grid lines are one unit apart.
5 Make a rough graph of the following curve. Be sure to label salient features directly with their coordinates. $4x^2 + 9y^2 - 4x + 72y + 1 = 0$.

6 Make a rough graph of the function $Q(x) = 4 - 2\sqrt{4 - x}$. Show a little graph of your starting “friend”.
7 Let \( f(x) = x^2 - 5x - 10 \). Compute and simplify \( \frac{f(x+h) - f(x)}{h} \).

8 Let \( f(x) = x^2 - 5x - 10 \). Use algebra to compute the salient points (the vertex and all intercepts) of this function’s graph. Sketch the graph and label these salient points with their coordinates right on the graph.
Here is the graph of function \( f \):

The numbered graphs show transformations of the graph of \( f \). Fill each blank with the graph number corresponding to the transformed function.

(a) \( y = f(x/2) \)  
(b) \( y = f(|x|) \)  
(c) \( y = f(2x) \)  
(d) \( y = 1 + f(x - 1) \)  
(e) \( y = f(x + 1) \)  
(f) \( y = f(x)/2 \)  
(g) \( y = 2 - f(x) \)  
(h) \( y = f(-x) \)