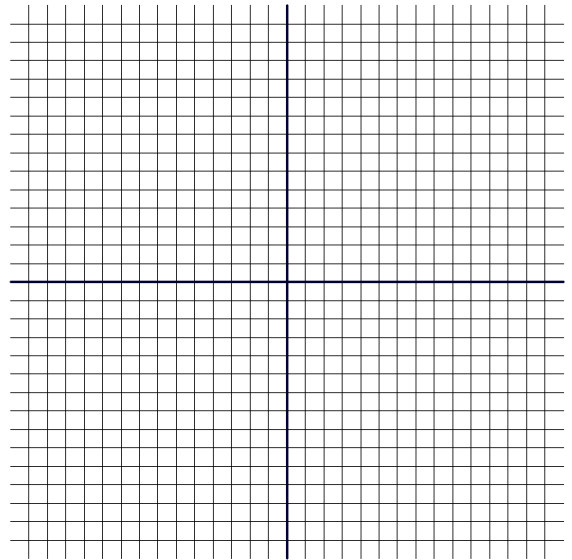


## Sample Math 95 Final Exam Questions

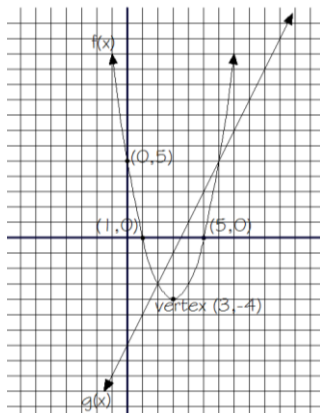
1. Use the functions for the problems below:  $f(x) = x^2 - 6x + 5$  and  $g(x) = 2x - 7$ 
  - a. Graph  $g(x)$ .
  - b. Graph  $f(x)$  and label the vertex, x & y-intercepts with their coordinates.
  - c. State the range of  $f(x)$
  - d. Find  $x$  if  $f(x) = 12$
  - e. Find  $f(-2)$
  - f. Find  $f(g(x))$
  - g. Find  $g^{-1}(x)$



2. Simplify:  $\sqrt[3]{-24x^6y^4}$
3. Write in radical form and give the decimal approximation:  $4^{-\frac{2}{5}}$
4. Solve, clearly showing each step in the process:  $\sqrt{3x - 6} + 2 = x$
5. Find the distance between the points  $(-4, 2)$  and  $(-12, -2)$ . Answer as a simplified radical.
6. An arrow shot horizontal distance  $d$  (in yards) and height  $h$  (in yards) is modeled by the function:  $h(d) = -.024d^2 + 7.2d + 8$ 
  - a. Find the height at the beginning of the shot
  - b. Find the maximum height the arrow reaches
  - c. Find the distance it travels before hitting the ground
  - d. Find both distances that it is 80 yards off the ground
7. Solve for  $t$ :  $315 = 25e^{.037t}$
8. Solve for  $p$ :  $\ln(12 - 2p) = 2$
9. Find the interest rate ( $r$ ) required for \$1,200 to grow to \$1,680 in 2 years compounded quarterly.  $A = P(1 + \frac{r}{4})^{4t}$

**Solutions:**

1. a/b.



c.  $(-4, +\infty)$    d.  $x = -1 \text{ \& } 7$    e. 21   f.  $4x^2 - 40x + 96$    g.  $\frac{x+7}{2}$

2.  $-2x^2y \sqrt[3]{3y}$    3.  $\frac{1}{\sqrt[5]{16}} \approx .574$    4.  $x = 2 \text{ \& } 5$

5.  $4\sqrt{5}$    6. a. 8 yards   b. 548 yards   c. 301.1 yards

d. 10.4 & 289.6 yards   7.  $t \approx 68.5$    8.  $p \approx 2.3$    9. 17.2%