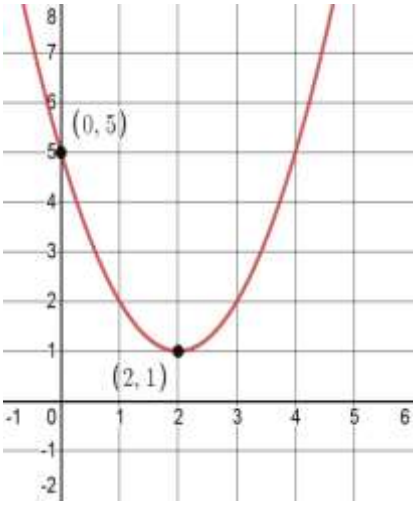
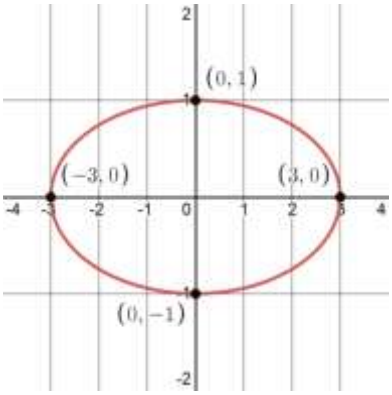
W21 MAT 1070 Final Exam Key

1. a. 2
   b. -6
2. The graph of $y = \sqrt{x}$ would reflect over the x-axis and shift five units left to get the graph of $y = -\sqrt{x+5}$
3. $x = 5$
4. a. $\frac{1}{2}$ b. 3 c. $-\frac{1}{3}$ d. -2
5. She sold 18 necklaces and 50 bracelets.
6. $y = 5x - 3$
7. a. $3x^3 - 13x^2 + 7x - 1$
   b. $\sqrt{23}$
   c. $3x^2 - 12x + 4$
8. $(-\infty, -5) \cup (-5,0) \cup (0, \infty)$
9. a. Domain: $(-\infty, 3) \cup (3, \infty)$
   b. Range: $(-\infty, 5]$
   c. $f(0) = 4$
   d. Increase: $(-\infty, -3) \cup (-1,0)$
   e. Decrease: $(-2, -1) \cup (0,3)$
10. No solution
11. a. It will take the gymnast 1 second to reach the ground.
    b. The gymnast is 8 ft above the ground at 0 seconds and $\frac{1}{2}$ second.
12. No solution
13. $(-\infty, -2) \cup (1, \infty)$
14. $x = 64$ or $x = -8$
15. $2x + h - 1$
16. $x = 1 \pm i\sqrt{3}$
17. 

18. a. ellipse b. 

19. $(0,1) \cup (1, \infty)$
20. The width is 10cm and the length is 20cm.