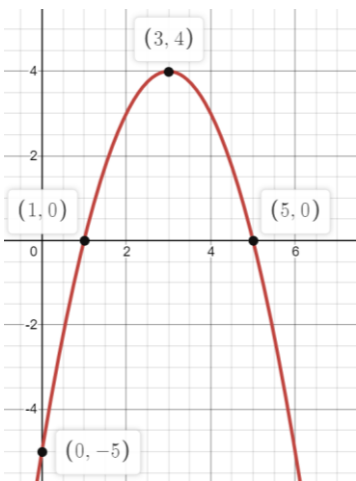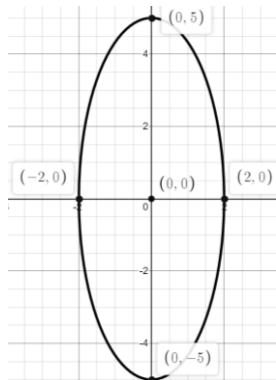F20 MAT 1070 Final Exam Key

1. 6x + 3h
2. a. Domain: $(-\infty, -2) \cup (-2, \infty)$
   b. Range: $(-3, \infty)$
   c. $f(0) = 2$
   d. Increase: $(1, \infty)$
   e. Decrease: $(-\infty, -5), (-2,0), (0,1)$
3. $y = -\frac{1}{3}x - 1$
4. a. $f(-2) = 1$
   b. $f(2) = 0$
5. $(-\infty, 1) \cup (1,5) \cup (5, \infty)$
6. A blend of 4 lbs of Mexican coffee and 16 lbs of Peruvian coffee would sell for $7 per lb.
7. $(-\infty, -18] \cup [2, \infty)$
8. x = 3
9. x = 4
10. The original length was 19", the original width was 15".
11.

(3, 4)
(1, 0)
(5, 0)
(0, −5)

12. $(-5,0) \cup (0, \infty)$
13. $x = -1 \pm i$
14. $y = \frac{1}{16}$
15. a. 3.3   b. 6.9   c. 1.6
16. x = 6
17. a. ellipse   b.

(0, 5)
(−2, 0)
(0, 0)
(2, 0)
(0, −5)

18. In 2 days the drug will be eliminated from the bloodstream.
19. a. $3x^2 + 3x - 2$
    b. -89
    c. $-4x - 5 - 3\sqrt{2x + 3}$
20. The graph of $y = |x|$ would shift one unit right and three units left to get the graph of $y = |x - 1| + 3.$