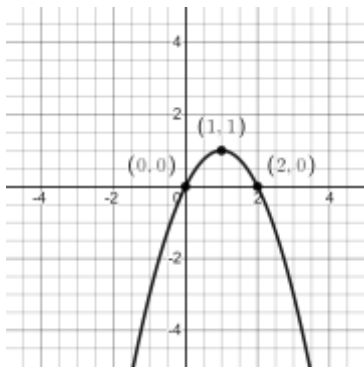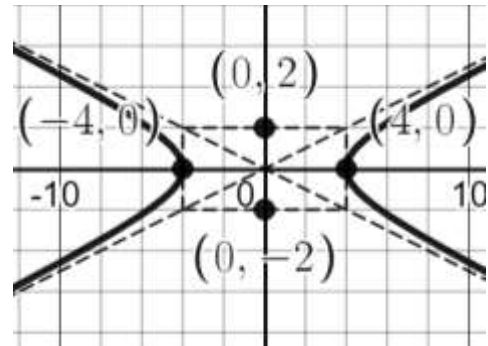1. $\left[\frac{2}{3}, \infty\right)$

2. a. $g(-2) = -1$
   b. $g(9) = 3$

3. $f(x) = -(x-4)^2$

4. $-2x - h$

5. $x = 0$

6. a.   1.2
   b.   1.7
   c.   2.1

7. a.   Domain: $(-\infty, 0) \cup (0, \infty)$
   b.   Range: $[-5, \infty)$
   c. $f(3) = -5$
   d.   Increase: $(-4, -2), (3, \infty)$
   e.   Decrease: $(-\infty, -4), (-2, 0)$

8. x = -2

9. x = 0

10. It will take the object 2 seconds to return to the ground.

11. The loan at 4% interest is $6400, the loan at 6% interest is $3600.

12. y = 2x – 4

13. a. $\frac{1}{2}x^3 + x^2 - \frac{5}{2}x$
    b.   2
    c. $\frac{1}{2}x^2 + x - \frac{5}{2}$

14. $\left[-\frac{1}{2}, 1\right]$

15. $\left\{\frac{1}{64}, 64\right\}$

16. $\{2 - i\sqrt{2}, 2 + i\sqrt{2}\}$

17. a.   (1,1)
    b.

18. a. hyperbola
    b.

19. $[-1,0) \cup (0,2]$

20. The width is 8 m, the length is 11 m.