1. (Set for omission: 2018)

2. \( \left( \frac{16}{7}, \frac{2}{7} \right) \)

3. (a) (Set for omission: 2018)
   (b) \((-\infty, -4] \cup [3, \infty)\)

4. \( y = \frac{3}{2}x - \frac{11}{2} \)

5. (a) \( x = 5 \)
   (b) \( x = \pm 2, \ x = \pm 3 \)
   (c) \( x = -\frac{11}{4} \)

6. (a) \( x = 19 \)
   (b) \( x = \frac{-3 \ln 4}{(5 \ln 4) - 7} \) or \( x \approx 60.689 \)

7. Colombian coffee: 75 pounds; lower grade coffee: 25 pounds

8. (a) \((f - g)(-4) = -17\)
   (b) \((f \circ f)(5) = 37\)
   (c) \((f \circ g)(x) = 3\sqrt{1 - 2x} - 2\)
   (d) \((f \circ g)(-4) = 7\)

9. **Correction:** (Give your answer in transformation(vertex) or standard form.)

   Transformation (Vertex) form:  
   \[
   f(x) = \frac{7}{2}(x - 3)^2 - 4 \\
   f(x) = 3.5(x - 3)^2 - 4
   \]

   Standard form:  
   \[
   f(x) = \frac{7}{2}x^2 - 21x + \frac{55}{2} \\
   f(x) = 3.5x^2 - 21x + 27.5
   \]

10. (a) The domain is the set of all real numbers.  **Interval notation:** \((-\infty, \infty)\)
    (b) The range is the set of all real numbers greater than 2.  **Interval notation:** \((2, \infty)\)
    (c) \( y = 2 \)
    (d) Graph:

    ![Graph](image)

    (e) \( f^{-1}(x) = \log_3(x - 2) \)
    (f) The domain is the set of all real numbers greater than 2.  **Interval notation:** \((2, \infty)\)
    (g) The range is the set of all real numbers.  **Interval notation:** \((-\infty, \infty)\)
    (h) \( x = 2 \)
11. (a) $[-2, \infty)$
(b) $f(1) = 3$
(c) $f(2) = 1$
(d) $f(-2) = -4$
(e) Graph:

12. (a) $f(x) = -(x-3)^3(x-3)^1 = -x^4 + 9x^2$
   Must be a negative number; Must be an even number; Must be an odd number
   {NOTE: Degree = 4 for this example.}
(b) (Set for omission: 2018)

13. (a) $(-\infty, 2) \cup (2, 5) \cup (5, \infty)$
(b) $r(x) = \frac{2x+3}{x-5}$
(c) $\left(0, \frac{-3}{5}\right)$
(d) $\left(\frac{3}{2}, 0\right)$
(e) $x = 5$
(f) $y = 2$
(g) Graph:

14. $f(x) = \sqrt{-x} + 2$
    $g(x) = (x + 2)^2$

15. 35

16. $\log_5 \frac{\sqrt{x-3}(x-1)}{(x+1)^2}$

17. 1.654
18. Using the order of operations (no approximations at any point of the calculation): $4,505.23
   The final answer has been rounded to the nearest cent.

19. Using the order of operations (no approximations at any point of the calculation): 4.1 hours
   The final answer has been rounded to the nearest tenth of an hour.

20. (Set for omission: 2018)

21. (a) The price, $224.00, should be charged in order to maximize the revenue.
    (b) The maximum revenue is $6,272,000.00.

If any of your final answers are different from the answers provided, be sure to ask about it.