1. Solve the following equations for x. Check your solutions.

(a). $\sqrt{x+5} - 4 = 0$

(b). $(x+4)^{3/2} = 27$

(c). $|2x - 1| = 3x + 6$

2. Section 1.6 #100

3. Solve the following inequalities. Then graph the solution set.

(a). $3x + 4 > 5$ **(b).** $-2 < -2(x+3) \le 6$

(c). $\left| \dfrac{x-2}{3} \right| < 2$ **(d).** $|x+4| \ge 3$

4. Section 1.7 #85, 99

5. Solve the following inequalities. Then graph the solution set.

(a). $x^2 + 2x > 8$ **(b).** $\dfrac{5}{x-6} < \dfrac{3}{x+2}$

6. Section 1.8 #74, 78

7. Find the slope and y-intercept of

(a). $2x + 3y = 4$ **(b).** $4x - 8 = 0$

8. Find an equation of the line with the given properties.

(a). Passes through the point $(3, -5)$ and has slope $m = -2$.

(b). Passes through the points $(-2, 4)$ and $(3, -1)$.

(c). Passes through the point $(-1, 2)$ and $(4, 2)$.

(d). Passes through the point $(2, 1)$ and is perpendicular to the line $4x + 3y = 2$.

9. Section 2.1, #95. Hint: The value of the oven when it is discarded is $0.

10. Determine whether the equation represents y as a function of x: $x^2 + y = -9$

11. Evaluate, if possible, the function at the specified value and simplify.

(a). $f(x) = \dfrac{4x+1}{\sqrt{x}}$ (i). $f(4)$ (ii). $f(x+2)$

(b). Section 2.2 #32

12. Find the domain of $f(x) = \sqrt{2x - 3}$

13. Section 2.3 #9, 14, 33

14. Find the zeros of $f(x) = \dfrac{x^2 - 4}{x}$ algebraically.

15. Determine whether $f(x) = x^3 + 3$ is odd, even, or neither. You must show work.

16. Section 2.4 #39

17. Section 2.5 #9(c,d,g), 13, 27

18. If $f(x) = 2x^2 - 3$ and $g(x) = x + 2$, find

(a). $(f - g)(-1)$ **(b).** $(fg)(2t)$

19. Given $f(x) = \frac{1}{x}$ and $g(x) = 6 - 2x$,

(a). Find $f \circ g$ and state the domain.

(b). Find $f \circ f$ and state the domain.

20. Section 2.6 #45

21. Section 2.7 #20

22. Verify that the following functions are inverses of each other $f(x) = \dfrac{1}{2 + x}$ and $g(x) = \dfrac{1 - 2x}{x}$.

23. Given $f(x) = (x - 4)^2, x \geq 4$, determine whether it has an inverse function. If it does, find the inverse function. Also, state the domain and range of both f and f^{-1}.

24. Section 3.1 #15(c), 28, 45, 80

25. Given $f(x) = \dfrac{1}{4}x^2 - 2x - 12$, find the vertex and x-intercepts algebraically.