—**Homework 1**—

In exercises 3-4, use the given function to evaluate each expression at each of the following inputs.

1.1 #3. $F(x) = \frac{2x}{x^2-25}$. **(a)** $F(3)$ **(b)** $F(-5)$ **(c)** $F(0)$ **(d)** $F(-7)$

1.1 #4. $b(x) = \sqrt{64 - x^2}$ **(a)** $b(0)$ **(b)** $b(3)$ **(c)** $b(10)$ **(d)** $b(\sqrt{15})$

In exercises 8-9, (a) determine the domain of the function and express it in interval notation. (b) Find the zeroes of the function.

1.1 #8. $q(n) = -\sqrt{2n - 4}$.

1.1 #9. $F(y) = \frac{3y-5}{y^2-y-6}$.

In exercises 13-14, use the given function to simplify the expression.

1.1 #13. $P(x) = x^2 + 3$. **(a)** $P(t+4)$ **(b)** $P(t) + P(4)$ **(c)** $P(t) + 4$ **(d)** $t + P(4)$

1.1 #14. $Q(x) = \frac{3}{2x}$. **(a)** $Q(2n)$ **(b)** $2Q(n)$ **(c)** $Q(2) \cdot Q(n)$ **(d)** $Q(2) \cdot n$

In exercises 25-26, simplify

$$\frac{f(x+h) - f(x)}{h}$$

1.1 #25. $f(x) = 4x + 13$

1.1 #26. $f(x) = 5 - 3x$

1.1 #31. Given the function

$$M(x) = \begin{cases} -\frac{2}{3}x & x < -4 \\ 5 & -4 \leq x < 2 \\ \sqrt{2x} & x \geq 2 \end{cases}$$

evaluate **(a)** $M(-7)$ **(b)** $M(-1)$ **(c)** $M(2)$ **(d)** $M(18)$

1.1 #32. Given the function

$$n(x) = \begin{cases} -\sqrt{2} & x < -3 \\ x + 5 & -3 \leq x \leq 3 \\ x^2 - 4 & x > 3 \end{cases}$$

evaluate **(a)** $n(-4)$ **(b)** $n(-3)$ **(c)** $n(3)$ **(d)** $n(6)$