24) \( f(x) = \frac{5x+4}{x^2+3x+2} \)

Domain (D) consists of all points in \( \mathbb{R} \) except those points at which \( x^2+3x+2 = 0 \)

\( x^2+3x+2 = 0 \Rightarrow (x+1)(x+2) = 0 \Rightarrow x = -1, \text{ or } x = -2 \)

So \( D = \{ x \in \mathbb{R} : x \neq -1, -2 \} \)

This can also be written in the following forms:

\[ D = (-\infty, -2) \cup (-2, -1) \cup (-1, \infty) \]

\[ D = \mathbb{R} \setminus \{ -1, -2 \} \text{ or } \mathbb{R} \setminus \{ -1, -2 \} \]

33) \( g(x) = \sqrt{x-5} \)

Domain (D) consists of all points in \( \mathbb{R} \) except those points at which \( x-5 < 0 \)

\( x-5 < 0 \Rightarrow x < 5 \) (or) \( (-\infty, 5) \)

If we remove this from the real line we are left with \( [5, \infty) \)

\( D = [5, \infty) \)
To plot the graph, we square both sides of the equation \( y = \sqrt{x-5} \) to get \( y^2 = x - 5 \). This refers to the following parabola.

We don't include the bottom half as \( \sqrt{x-5} \) denotes the positive square root.

34) \( f(x) = |2x+1| \)

This is defined for all reals.

So \( D = (-\infty, \infty) \) (or) \( \mathbb{R} \)

\[
|2x+1| = \begin{cases} 
2x+1, & (2x+1) > 0 \\
-(2x+1), & (2x+1) \leq 0 
\end{cases}
\]

i.e

\[
|2x+1| = \begin{cases} 
2x+1, & x \geq -\frac{1}{2} \\
-(2x+1), & x < -\frac{1}{2} 
\end{cases}
\]
38) \[ f(x) = \begin{cases} 2x + 3 & \text{if } x < -1 \\ 3 - x & \text{if } x \geq -1 \end{cases} \]

This is defined for all reals.
So \( D = \mathbb{R} \cup (-\infty, \infty) \)

53) Length of box \( L \) = 20 - 2x
Width of box \( W \) = 12 - 2x
Height of box \( H \) = x

Volume of box = \( LW \times H = (20 - 2x)(12 - 2x)x \)

To find the domain, we use the conditions \( L > 0, W > 0 \) and \( H > 0 \)

\( L > 0 \) gives \( 20 - 2x > 0 \) \( \Rightarrow \) \( x < 10 \)
\( W > 0 \) gives \( 12 - 2x > 0 \) \( \Rightarrow \) \( x < 6 \)
\( H > 0 \) gives \( x > 0 \)

Domain (\( D \)) is: \( 0 < x < 6 \)
f is not symmetric about Y axis.
So f is not a even function.
f is not symmetric about origin.

[Another way to realize this is that 
\( f(0) \neq 0 \). For odd functions \( f(0) = 0 \) ]
So f is not a odd function.

Hence f is neither even nor odd.

g is clearly symmetric about Y axis.

So g is an even function.
[If \( f \) is even, its symmetric about \( Y\)-axis. So the rest of the graph is obtained by reflecting about \( Y \) axis]

[If \( f \) is odd, its symmetric about the origin. So the rest of the graph is obtained by rotating by 180\(^{\circ}\) about the origin]