1. Draw a graph of the functions x, x^2, x^3.

2. Draw a graph of the functions $f(x) = x^2 - 8x + 15$.

3. Draw a graph of the functions $f(x) = (x-2)(x+3)(x-5)$.

4. Given functions $f(x) = \frac{x^2 - 8x + 15}{x + 3}$, $g(y) = \sqrt{y^2 - 4}$, then answer the following questions.

   (a) If the domain of $f(x)$ is $(-\infty, -m) \cup (-m, \infty)$, then find the value of m.

   (b) If the domain of $g(x)$ is $(-\infty, -n] \cup [n, \infty)$, then find the value of n?

5. What will be the range of $g(x) = \sqrt{x^2 - 4}$?

6. Find the domain of $h(x)$ if $h(x) = fog(x)$ where $f(x) = \frac{x^2 - 8x + 15}{x+3}$ and $g(x) = \sqrt{x^2 - 4}$.

7. Rohan (age 22) saw a birthday offer outside of a shop. The offer includes a discount of $D(a)\%$ on the payable amount if the customer has birthday on that particular day, where a is the age of the customer and $D(a) = (-a^2 + 50a - 600)$. The shop also has a Sunday offer which is flat discount of ₹1500, if the initial purchased amount is more than ₹12000. Suppose Rohan has a friend (age 25) who shares the same birthday with Rohan on a particular sunday. Express the final payable amount as a function in terms of a and find the possible minimum amount needed to be paid if Rohan purchased some commodities of ₹15000 from the shop.

Assume the following :

- Any offer can be applied first.
- Rohan can use either his or his friend's birthday for the birthday offer.

8. Ramya wants to have a sum of amount in her bank account for launching her own startup company. She currently has 12 lakh in her account and the bank provides interest at the rate of $x\%$ per annum. Assuming that the bank calculate the amount quarterly,

- find the total amount in terms of x (denoted by the function $f(x)$), in her account after n years.

- find a function $g(y)$ to calculate the required rate based on the amount Ramya required for launching her startup company after n years.