20 FUNCTIONS YOU GOTTA KNOW AND LOVE PROJECT

Chapter 1 deals with functions and their characteristics. To facilitate a study of functions, it is important to visualize mentally the graphical image of a function when given an algebraic description. The following 20 functions should be mental pictures that will insure your accuracy and speed.

I.   Graph the following 20 functions on the graph paper provided.

1. $Y = C$

2. $Y = AX + B$, A>0 and B>0

3. $Y = AX + B$, A>0 and B<0

4. $Y = AX + B$, A<0 and B>0

5. $Y = AX + B$, A<0 and B<0

6. $Y = X^2$

7. $Y = X^3$

8. $Y = |X|$

9. $Y = [\![X]\!]$

10. $Y = \sin X$

11. $Y = \cos X$

12. $Y = \tan X$

13. $Y = 10^X$

14. $Y = \log X$

15. $Y = e^X$

16. $Y = \ln X$

17. $Y = \dfrac{1}{X}$

18. $Y = \dfrac{1}{X^2}$

19. $Y = \sqrt{A^2 - X^2}$

20. $Y = \operatorname{signum} X = \begin{cases} 1 & \text{if } X > 0 \\ 0 & \text{if } X = 0 \\ -1 & \text{if } X < 0 \end{cases}$

II.   Complete this chart about the indicated functions. (R = set of real numbers)

Function	Domain (x values that makes the function defined)	Range (Y values when X is the domain)	Roots (Zeroes, X values that make Y=0)	Symmetry (X-axis, Y-axis, origin)	Even or Odd Function (odd: -f(X) = f(-X); even: f(-X)= f(X))	Is the function periodic? If so, give the period.	Is Y a one-to-one function? (For each Y only one X)	State the X coordinates of any points of discontinuity
1. $Y = C$								
2. $Y = AX + B$								
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