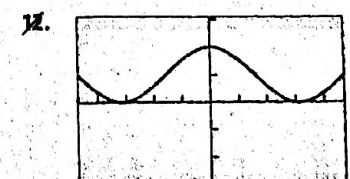
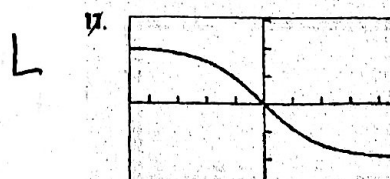
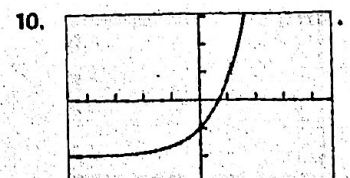
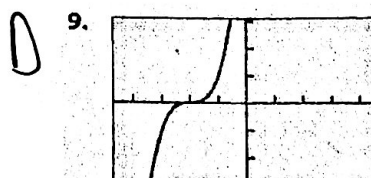
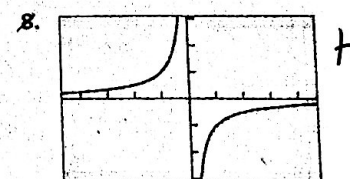
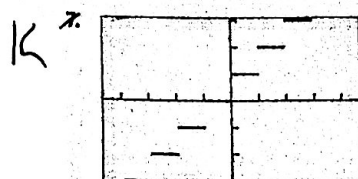
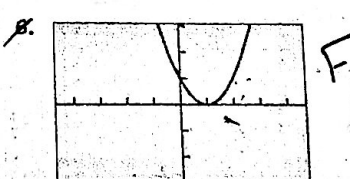
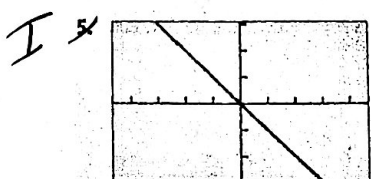
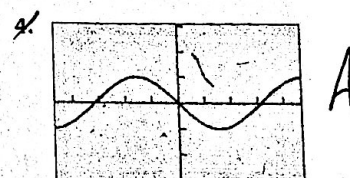
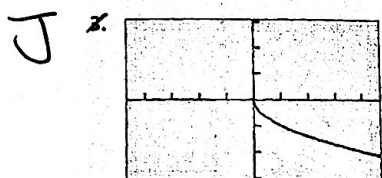
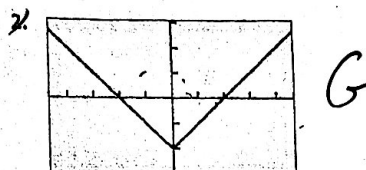
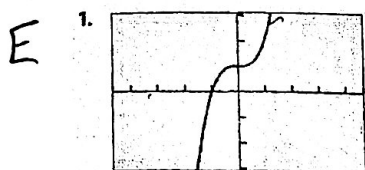


Precalculus Unit 1

Homework—The 12 Basic Functions

Part 1: For #1-12, each graph is a slight variation on the graph of one of the 12 basic functions. Match the graph to one of the 12 functions (a)-(l) and then support your answer by checking the graph on your calculator. All graphs shown are in the window [-4.7, 4.7] by [-3.1, 3.1].

- (a) $y = -\sin x$ 4
- (b) $y = \cos x + 1$ 12
- (c) $y = e^x - 2$ 10
- (d) $y = (x + 2)^3$ 9
- (e) $y = x^3 + 1$ 1
- (f) $y = (x - 1)^2$ 6
- (g) $y = |x| - 2$ 2
- (h) $y = -1/x$ 8
- (i) $y = -x$ 5
- (j) $y = -\sqrt{x}$ 3
- (k) $y = \text{int}(x + 1)$ 7
- (l) $y = 2 - 4/(1 + e^{-x})$ 11



Part 2: For #13-18, identify which of exercises 1-12 display functions that fit the description given.

13. The function whose domain excludes zero. *B*
14. The function whose domain consists of all nonnegative real numbers. *3*
15. The two functions that have at least one point of discontinuity. *7 + 8*
16. The function that is not a *continuous function*. *7 + 8*
17. The six functions that are bounded below. *2, 4, 6, 10, 11, 12*
18. The four functions that are bounded above. *3, 4, 11, 12*

Part 3: For #19-24, identify which of the 12 basic functions fit the description given.

19. The four functions that are odd. *Identity, cubing, reciprocal, sin*
20. The six functions that are increasing on their entire domains. *Identity, cubing, square root, exponential, natural log, logistic*
21. The three functions that are decreasing on the interval $(-\infty, 0)$. *Identity, cubing, exponential, logistic*
22. The ~~three~~ functions with infinitely many local extrema. *sin, cos*
23. The three functions with no zeros. *reciprocal, exponential, logistic*
24. The three functions with range {all real numbers}.
identity, cubing, natural log.