Name: ________________________________

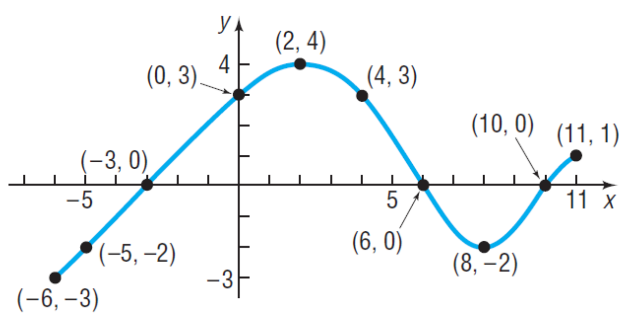
1.REV.1 – END OF CHAPTER REVIEW

Past due on: __________ Period: _____

Problems 1 – 6: True or False?

1. $Q = f(t)$ means Q is equal to f times t.
2. A function must be defined by a formula.
3. Independent variables are always denoted by the letter x or t.
4. A function is a rule that takes certain values as inputs and assigns to each input value exactly one output value.
5. The graph of a circle is not the graph of a function.
6. If $n = f(A)$ is the number of angels that can dance on the head of a pin whose area is A square millimeters, then $f(10) = 100$ tells us that 10 angels can dance on the head of a pin whose area is 100 square millimeters.

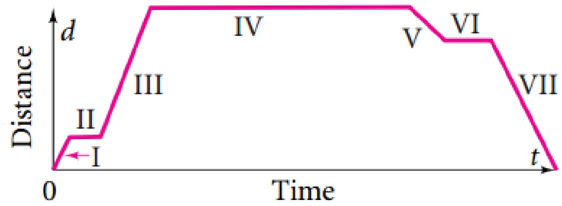
Problems 7 – 16: Use the graph of $f(x)$.



7. Evaluate $f(-3)$.
8. Evaluate $f(2)$.
9. Solve $f(x) = -2$.
10. Solve $f(x) = 3$.
11. Identify the domain.
12. Identify the range.
13. What are the coordinates of the minimum?
14. What are the coordinates of the maximum?
15. For what interval(s) is the function increasing?
16. For what interval(s) is the function decreasing?
17. If $f(x) = 2x + 1$, evaluate $f(0)$ and solve $f(x) = 0$.
18. In 1966, the U.S. Surgeon General's health warnings began appearing on cigarette packages. The following data seems to demonstrate that public awareness of the health hazards of smoking has had some effect on consumption of cigarettes. The percentage, p, of the total population (18 & older) who smoke can be approximated by the function $p(t) = -0.555t + 41.67$, where t is the number of years after 1965.
    a. Evaluate $p(16)$ and explain what the answer represents in terms of the contextual situation.
    b. Solve $p(t) = 15$ for t. What year does t represent?
19. The table shows Amazon's net income for the years 2002 – 2004.
    a. Calculate the average rate of change for the entire interval. (*Round to one decimal place.*)
    b. Estimate Amazon's net income in 2020. *Show how you obtained your answer.*

Year *Y*	**Net Income ($ billions)** *R*
2002	3.9
2003	5.3
2004	6.9

20. The graph (at right) shows the distance Molly was from home throughout Tuesday. She spent about six hours at school, one hour at a friend's house, and about 30 minutes waiting for a bus. She also walked and rode the bus part of the day.



Which part of the graph represents the time spent…

a. At a friend's house? b. At school? c. Waiting at the bus stop? d. Walking to the bus stop?

21. In 1980, the winning time for women in the Olympic 500-meter speed skating event was 41.78 seconds. The average rate of decrease in the winning time has been about 0.19 second per year.

a. Express the winning time, T, as a function of the number of years since 1980, x.

b. According to the function, when will the winning time be 35.7 seconds?

22. Your car needs a few new parts to pass inspection. The labor cost is $68 an hour, charged by the half hour, and the parts cost a total of $148. Whether you can afford these repairs depends on how long it will take the mechanic to install the parts.

a. Write a function formula that represents the total cost, C, as a function of the time, t, it takes to make the repairs.

b. How much will it cost if the mechanic works 4 hours?

c. You have $350 available in your budget for car repair. Do you have enough money if the mechanic says that it will take him 3 ½ hours to install the parts?

23. The cost to own and operate a car depends on many factors including gas prices, insurance costs, size of car, and finance charges. Using a Cost Calculator found online, you determined it costs you approximately $0.689 per mile to own and operate a car. The total cost is a function of the number of miles driven and can be represented by the function $C(m) = 0.689m$. When you finally take your car to the junkyard, the odometer reads 157,200 miles.

a. Identify the independent variable. What is the practical domain?

b. Identify the dependent variable. What is the practical range?

24. A large storm brings a great deal of rain to Miami, Florida. The rain is falling at a rate of 2 inches per hour. The storm stops after 6 and a half hours. The amount of rain that has fallen, A, is a function of time, t.

a. Write a function formula that represents the amount of rain that has fallen.

b. Identify the independent variable. What is the practical domain?

c. Identify the dependent variable. What is the practical range?