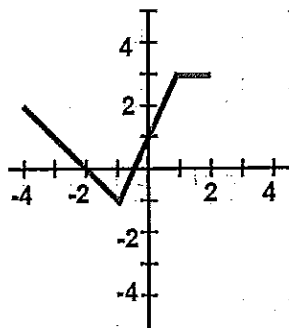


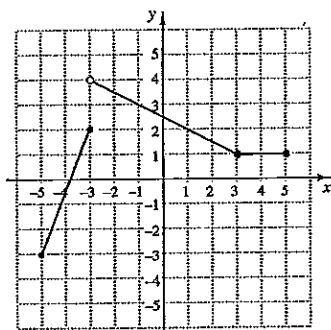
1. On what interval is the function below constant?



- a) $(-4, -1)$ c) $(-1, 1)$
b) $(1, 2)$ d) Not constant on any interval
2. What is the slope of any line perpendicular to $x + 2y = 3$?
- a) 2 c) -2
b) $1/2$ d) $-1/2$
3. The center of the circle $(x + 5)^2 + (y + 4)^2 = 17$ is $(-5, -4)$.
T) True
F) False
4. An equation of the line with slope 3 passing through $(-3, 10)$ is not $y = 3x + 10$. Rather, it is $y = 3x + 19$.
T) True
F) False

5. The line joining $(-5,5)$ and $(-5,-5)$ has undefined slope.
 T) True
 F) False
6. The ordered pair $(-5, 3/4)$ is on the graph of the line $8y - 3x = 21$.
 T) True
 F) False
7. A horizontal line containing the point $(2,3)$ has equation $y = 3$.
 T) True
 F) False

8. Determine the domain and range of the function below.



- a) Domain: $(-5, -3) \cup (-3, 5)$ Range: $(-3, 2) \cup (2, 4)$
 b) Domain: $[-5, 5]$ Range: $[-3, 4]$
 c) Domain: $[-5, -3) \cup (-3, 5]$ Range: $[-3, 2) \cup (2, 4)$
 d) Domain: $(-5, 5)$ Range: $(-3, 4]$
9. Suppose that $f(x) = x^2 - 3x - 2$ and $g(x) = 4x + 1$. Determine $(f - g)(-2)$.
 a) -7 c) 15
 b) 1 d) 4
10. Suppose that $f(x) = x^2 - 5$ and $g(x) = \sqrt{x - 1}$. What is the domain of $(f/g)(x)$?
 a) $(-\infty, 1) \cup (1, \infty)$ c) $(-\infty, -\sqrt{5}) \cup (-\sqrt{5}, \sqrt{5}) \cup (\sqrt{5}, \infty)$
 b) $[1, \infty)$ d) $(1, \infty)$
11. Find an equation of variation in which y varies inversely as x and $y = 15$ when $x = 10$.
 a) $y = \frac{2}{3}x$ c) $y = \frac{150}{x}$
 b) $y = \frac{3}{2}x$ d) $y = 6x$

12. Write an equation for a function that has the shape of $y=|x|$, but is shifted right 2 units and down 6 units.

a) $f(x)=|x+2|-6$ c) $f(x)=|x-2|+6$
 b) $f(x)=|x+2|+6$ d) $f(x)=|x-2|-6$

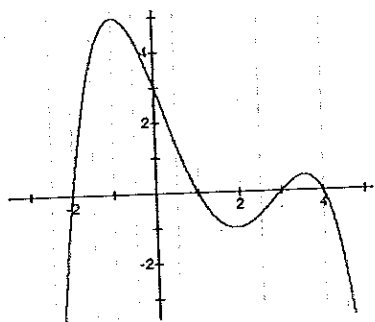
13. The function $f(x)=x^3$ is odd.

T) True
 F) False

14. The graph of $y=1-x^2$ is symmetric about the y -axis, but not the x -axis.

T) True
 F) False

15. The graph of the relation below is the graph of a function.



T) True
 F) False

16. The relation $\{(-2,0),(-1,1),(-1,3)\}$ is a function.

T) True
 F) False

17. The width of a rectangular blanket is 4 less than twice the length l . Express the area of the blanket as a function of l .

a) $A(l)=4l-l^2$ c) $A(l)=3l-4$
 b) $A(l)=2l^2-4$ d) $A(l)=2l^2-4l$

SHORT ANSWER SECTION. Be careful; there is no partial credit for these questions.

(3 pts each)

For questions 18 and 19, find the distance between $(1,-10)$ and $(3,-6)$:

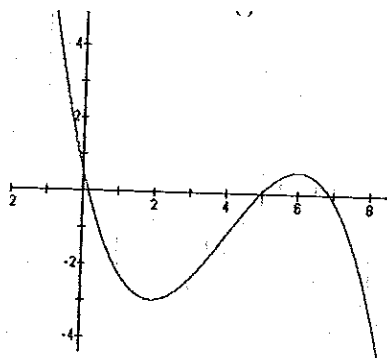
18. In simplest radical form (no decimals).

19. To one decimal place. (Make sure you follow the directions here.)

Questions 20 and 21 involve the circle with equation $(x+5)^2 + (y-3)^2 = 17$.

20. Determine its center.
21. Determine its radius.
22. Find the slope of the line containing the points $(-5,8)$ and $(5,4)$. Express your answer as a fraction in simplest form.
23. A car travels at a constant rate of 40 miles per hour for 45 minutes. How far did the car travel?

Questions 24 and 25 involve the function graphed below.



24. On what interval(s) is the function increasing? Express your answer in interval notation.
25. On what interval(s) is the function decreasing? Express your answer in interval notation.
26. Find the domain of the function $f(x) = \frac{x-3}{3x^2-2x-5}$ and write your answer in interval notation.

Questions 27, 28 and 29 involve the function defined by

$$f(x) = \begin{cases} x^2 + 1 & \text{for } x \leq -2, \\ |x - 5| & \text{for } -2 < x < 1, \\ \sqrt{2x} & \text{for } x \geq 1. \end{cases}$$

27. Find $f(-2)$.
28. Find $f(0)$.
29. Find $f(-2) + f(18)$. [Caution: this is not $f(16)$.]