

The following 14 multiple choice questions are worth 5 points each.

1. Solve: $\frac{5}{p-2} - \frac{7}{p+2} = \frac{12}{p^2-4}$

- a. No solution
- b. $p=18$
- c. $p=-6$
- d. $p=6$
- e. $p=-18$

2. Solve: $x^2 = 3 + 2x$

- a. $x=3, x=-1$
- b. $x=2, x=3$
- c. $x=-3, x=1$
- d. $x=-3, x=2$
- e. No real solution

3. Solve for n : $I = \frac{nE}{nr + R}$

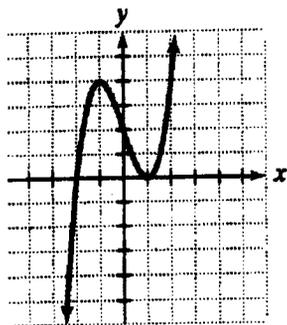
- a. $n = \frac{IR}{E - Ir}$
- b. $n = \frac{IR}{Ir + E}$
- c. $n = IR(Ir - E)$
- d. $n = \frac{-R}{Ir - E}$
- e. $n = IR(E + Ir)$

4. Compute the discriminant for the equation $x^2 + 7x - 8 = 0$, then determine the number and type of solution(s) to the equation.
- 17; no real solution
 - 17; two unequal real solutions
 - 81; two unequal real solutions
 - 0; one real solution
 - 81; one real solution
5. Let $f(x) = -x^2 - x - 3$. Evaluate $f(-x)$.
- $x^3 + x^2 + 3x$
 - $-x^2 + x - 3$
 - $x^2 + x - 3$
 - $-x^2 - x - 3$
 - $x^2 - x - 3$
6. Which of the following represent(s) y as a function of x ?

I. $\{(4,1), (4,7), (4,11)\}$

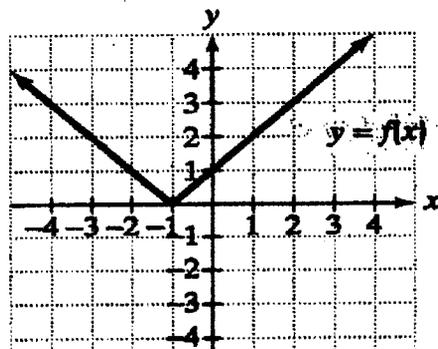
II. $x^2 + y^5 = 7$

III.



- None are functions.
- III only
- I and III only
- II and III only
- All are functions.

For questions 7 and 8 use the graph of f below.



7. Which of the following statements is true about the graph of f ?
- The domain of f is $[-1, \infty)$.
 - The range of f is $[-1, \infty)$.
 - The x -intercept of f is at $(-1, 0)$.
 - $f(2) = 1$
 - None of the above are true.
8. For what value(s) of x does $f(x) = 2$?
- $x = -3$
 - $x = -3$ and $x = 1$
 - $x = 3$
 - $x = 1$
 - It cannot be determined from the graph.

11. Determine the slope of the straight line that passes through the points $(a-b, a+c)$ and $(2b, 3a)$.

a. $m = \frac{2a+c}{b-a}$

b. The slope cannot be determined.

c. $m = \frac{b-a}{2a+c}$

d. $m = \frac{4a-c}{b-a}$

e. $m = \frac{2a-c}{3b-a}$

12. Determine which of the following is/are true.

I. The equation $y = mx + b$ shows that no line can have a y -intercept that is numerically equal to its slope.

II. The graph of the linear function $6x + 5y - 30 = 0$ is a line passing through the point $(5, 0)$ with slope $-\frac{6}{5}$.

III. The equation of the line that passes through $(1, 2)$ and has the same slope as the line $y = 3$ is $y = 2$.

a. None are true

b. Only I and II are true.

c. All are true.

d. Only II is true

e. Only II and III are true

13. Solve and write your answer using interval notation $-5 \leq \frac{2}{3}x - 3 < 1$

- a. $[-3, 6)$
- b. $[-12, -3)$
- c. $[6, -3)$
- d. $[-1, 4)$
- e. $[-12, 6)$

14. Given $f(x) = -x^2 + 2x - 3$, find and simplify the difference quotient: $\frac{f(x+h) - f(x)}{h}$

- a. $-2x - h + 2$
- b. $-2x^2 + h - 2$
- c. $2x + h - 6$
- d. $4x - 2h + 2$
- e. $-4x + 2$

Name _____ Instructor _____ Section _____

Problems 15-17 are free response. Pages 7 and 8 should be turned in with your Answer Sheet.

15. (10 pts) Write the equation, in slope-intercept form, of the linear function whose graph passes through the point $\left(6, -\frac{1}{2}\right)$ and is perpendicular to the line with x -intercept -4 and y -intercept 3 . (To receive credit please show all work.)

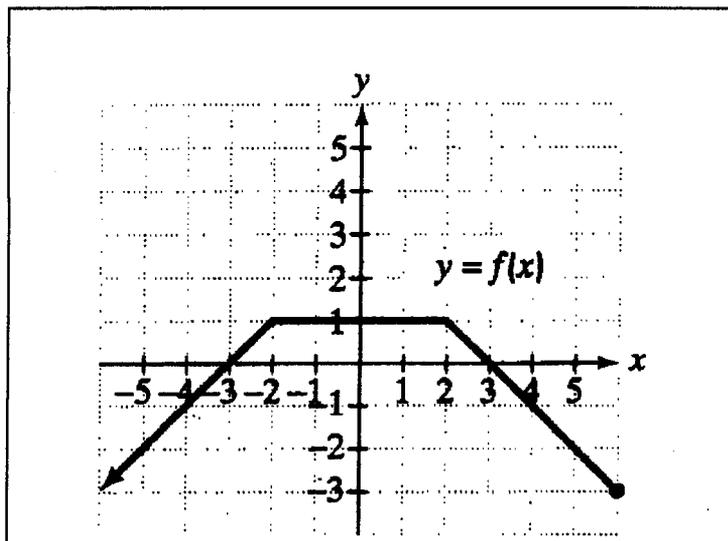
16. (10 points) Graph the following piecewise function and use the graph to determine the domain and range of the graph. Use interval notation when appropriate.

$$f(x) = \begin{cases} 2 & \text{if } x \leq -1 \\ x+1 & \text{if } x > -1 \end{cases}$$

Domain _____

Range _____

17. (10 pts) Use the graph of f below to answer each of the questions. Use interval notation when appropriate.



- a. What is $f(4)$? _____
- b. On what interval is f constant? _____
- c. On what interval is $f(x) \geq 0$? _____
- d. On what interval is f increasing? _____
- e. For what values of x is $f(x) = -2$? _____

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Question	Answer
1	D
2	A
3	A
4	C
5	B
6	D
7	C
8	B
9	B
10	C
11	E
12	E
13	A
14	A