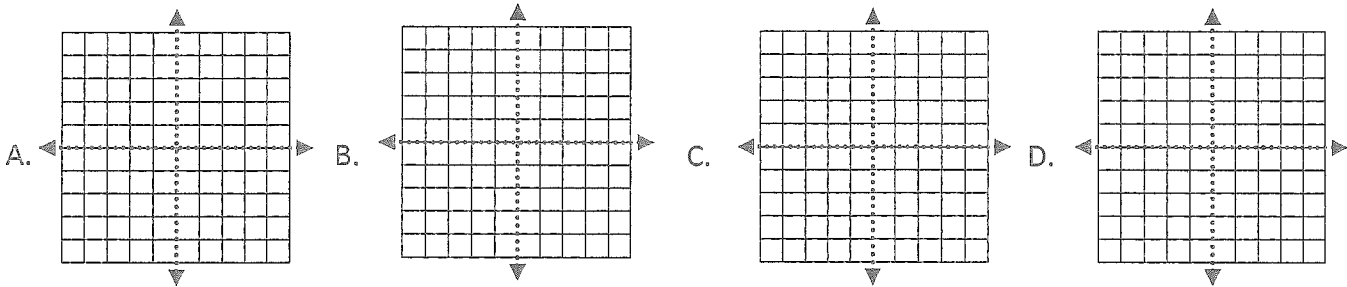


Find the domain and range of the relation. Is the relation a function?

1.  $(1, 3), (-1, 3), (2, 3), (-1, 2)$

2.  $(2, 2), (-3, 3), (-2, 7), (3, 1)$

3. Draw four relations two that are functions and two that are not. In your own words explain what a function is.



Perform basic operations between two functions.

4.  $f(x) = 4x^2 - 2x + 7$  and  $g(x) = -6x^2 + 4x - 5$   
find  $h(x) = f(x) + g(x)$ .

5.  $f(x) = 3x - 2$  and  $g(x) = 4x + 3$  find  
 $h(x) = f(x) \cdot g(x)$ .

Find the inverse of the function.

6.  $f(x) = 4x - 15$

7.  $f(x) = 3x^2 - 8$

*Patterns and Sequences*

8. Given the table

1	2	3	4
-3	0	3	6

- a. What is the common difference:
- b. Write the explicit rule:
- c. Write the recursive rule:
- d. Find the 8<sup>th</sup> term.

9. Consider the sequence -9, -3, 3, 9, ...

- a. What is the common difference:
- b. Write the explicit rule:
- c. Write the recursive rule:
- d. Find the 44<sup>th</sup> term.

*Piecewise Functions*

10. A golf course charges the following rates for nonmembers to golf (with a 10 hour limit).  
 \$30 per hour for the first 4 hours  
 \$20 per hour for the next 4 hours  
 No additional charge for the last 2 hours

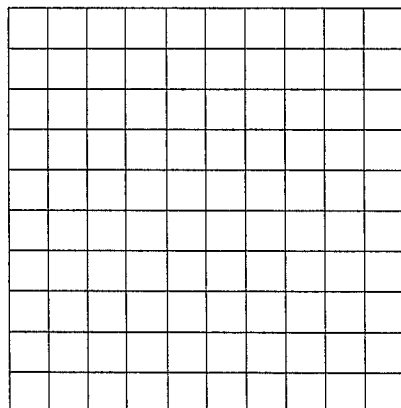
- a. Express the cost  $C$  (in dollars) as a function of the time  $t$  (in hours) that the golfer is playing on their course.

$$C(t) = \begin{cases} 30t & \text{if } 0 \leq t < 4 \\ 20t + 40 & \text{if } 4 \leq t < 8 \\ 200 & \text{if } 8 \leq t \leq 10 \end{cases}$$

- b. Complete the table:

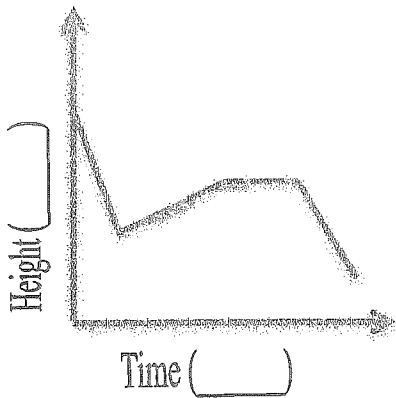
$t$	0	1	2	3	4	5	6	7	8	9	10
$C(t)$											

- c. Graph:



**Task**

11. Write a possible situation represented by the graph. Fill in your own units.



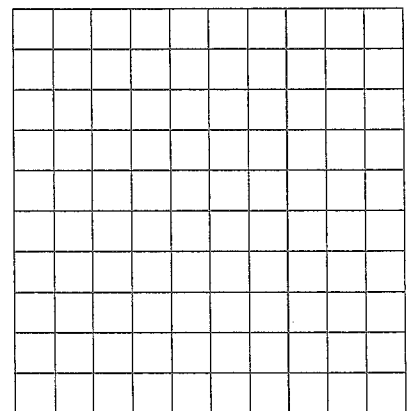
- a. What is the independent variable:
- b. What is the dependent variable:
- c. Is the relation above a function? Explain.

**Task**

12. A Science Test is made up of 10 problems, each worth 8 points. There is no partial credit. Every test taker receives 20 points for taking a test.

a. Write a function to describe the test score determined by the number of correct answers.

b. Graph the function using a reasonable domain and range.  
What is the domain and range?

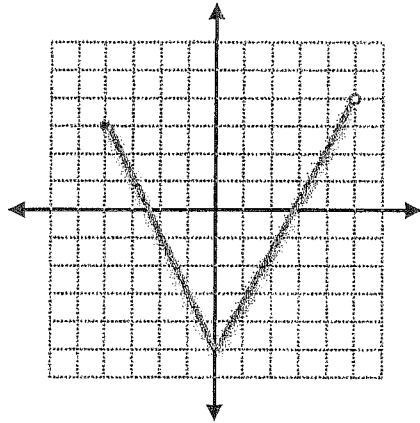


c. If you get 7 problems correct what is your score?

d. If passing is 60% or higher, how many must you get correct to pass?

On the scantron, choose the best answer.

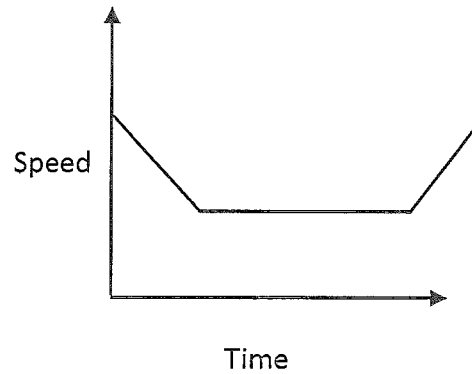
1. What is the domain and the range of the function below:



Domain:

Range:

2. Describe the situation represented by the graph below?



3. Given  $f(x) = 4x + 5$  and  $g(x) = -7x + 3$  find  $h(x) = f(x) - g(x)$ .

4. The function  $C(t)$  gives the cost  $C$  of buying  $t$  tickets to a baseball game when a group discount is offered.

$$C(t) = \begin{cases} 30t & \text{if } 0 \leq t < 10 \\ 25t & \text{if } t \geq 10 \end{cases}$$

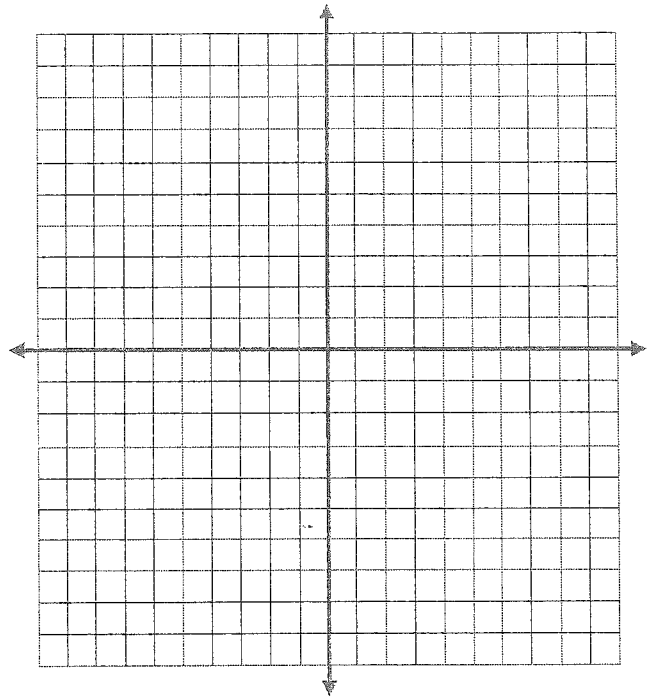
5. Write an explicit rule for the sequence:  
2, 6, 10, 14, ...

- How much would it cost if 8 people go to the game?
- How much would it cost if 10 people go to the game?
- How much would it cost if 12 people go to the game?

Graph each piecewise function. Complete a table to help you.

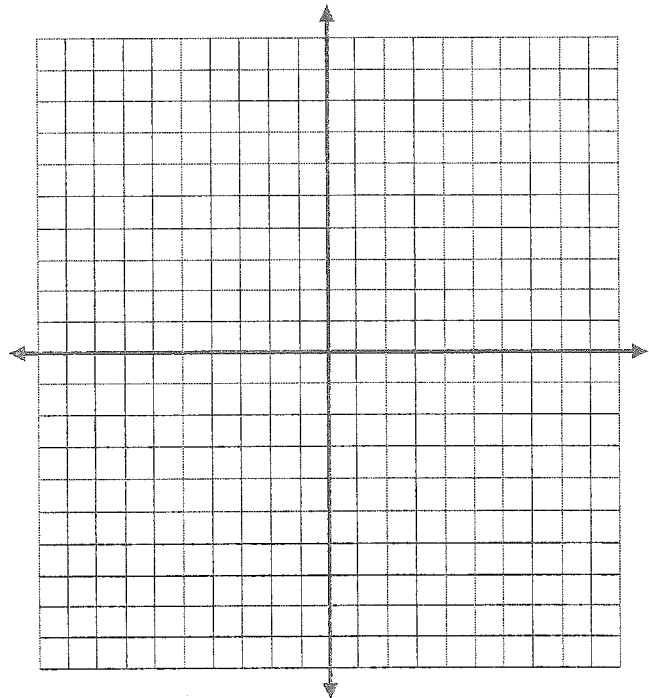
1.  $f(x) = \begin{cases} 3x + 4 & \text{if } x < 0 \\ -2x + 5 & \text{if } x \geq 0 \end{cases}$

$x$	Evaluate $f(x)$	$f(x)$	Ordered Pair
-3			
-2			
-1			
0			
1			
2			
3			



2.  $f(x) = \begin{cases} -2x + 2 & \text{if } x < -2 \\ 2x^2 - 1 & \text{if } -2 \leq x \leq 1 \\ x + 3 & \text{if } x > 1 \end{cases}$

$x$	Evaluate $f(x)$	$f(x)$	Ordered Pair
-3			
-2			
-1			
0			
1			
2			
3			



Evaluate each piecewise function for the given values.

3. Find

$$f(-3), f(-2.1), f(0.6), \text{ and } f(3.3) \text{ for } f(x) = \begin{cases} 2x - 6 & \text{if } x \leq 0 \\ x^3 - 3 & \text{if } 0 < x < 2 \\ 3x - 2 & \text{if } x \geq 2 \end{cases}$$

$f(-3) =$

$f(-2.1) =$

$f(0.6) =$

$f(2) =$

4. Find

$$f(-4), f(-2.9), f(0), \text{ and } f(1.9) \text{ for } f(x) = \begin{cases} -3 & \text{if } x \leq -1 \\ 4x + 2 & \text{if } -1 < x \leq 2 \\ 7 & \text{if } x > 2 \end{cases}$$

$f(-4) =$

$f(-0.9) =$

$f(0) =$

$f(4.9) =$