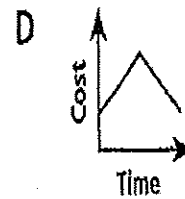
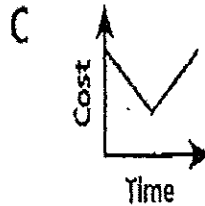
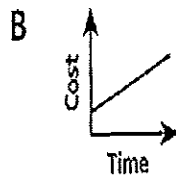
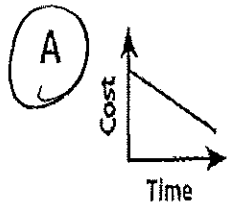


# Review - FUNCTIONS TEST

1. The cost of a certain type of electric car has steadily declined over time. Which graph **best** shows this?



2. Which is a **true** statement about the graphs in questions 1?

- A. Time is the dependent variable and cost and height are the independent variables.
- B. Time, cost, and height are all independent variables.
- C.** Time is the independent variable and cost and height are the dependent variables.
- D. Time, cost, and height are all dependent variables.

3. Ice skating costs \$3 per hour plus \$2.50 for skate rental. Which equation shows the relationship between  $h$ , the number of hours, and  $y$ , the cost?

- A.**  $y = \$3g + \$2.50$
- B.  $y = \$3g + \$2.50g$
- C.  $y = \frac{\$3g}{\$2.50}$
- D.  $y = \$2.50g + \$3$

4. Which table of values represents the linear function described by  $y = -3x + 10$ ?

**A**

x	y
0	10
1	7
2	4
3	1

**B**

x	y
0	10
1	13
2	16
3	19

**C**

x	y
0	7
1	7
2	4
3	1

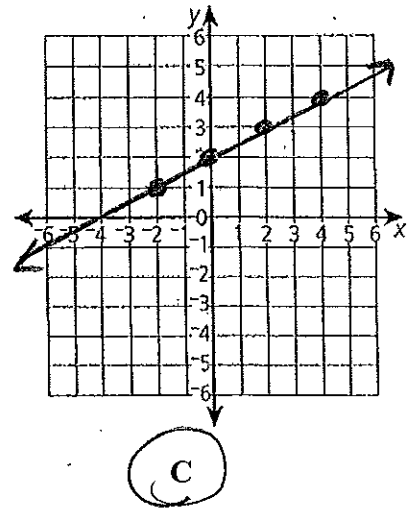
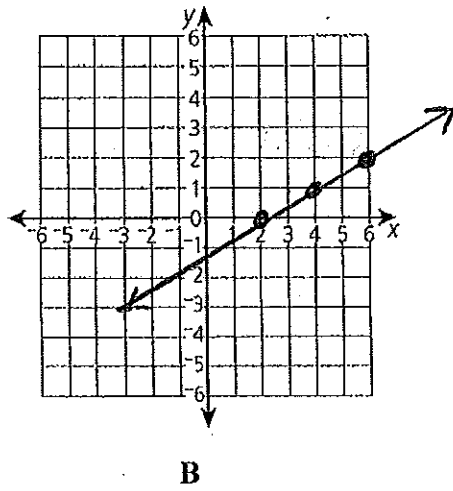
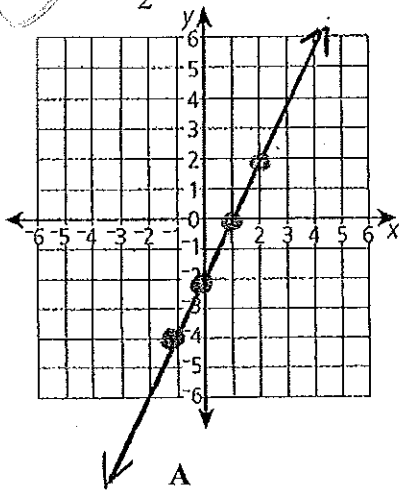
**D**

x	y
0	0
1	-10
2	-20
3	-30

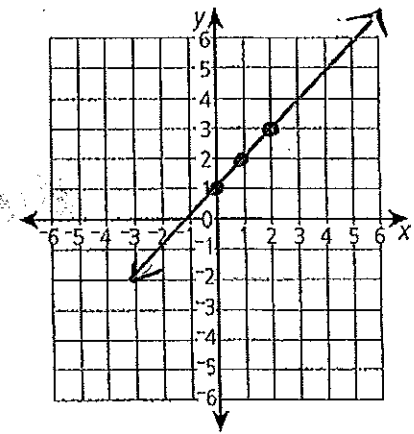
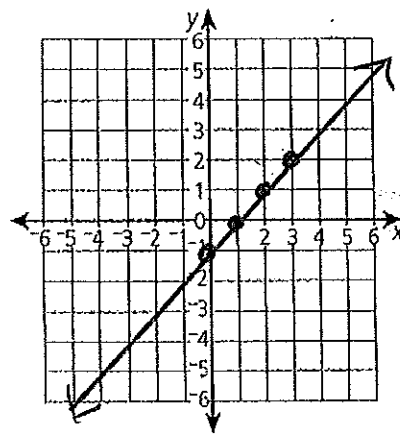
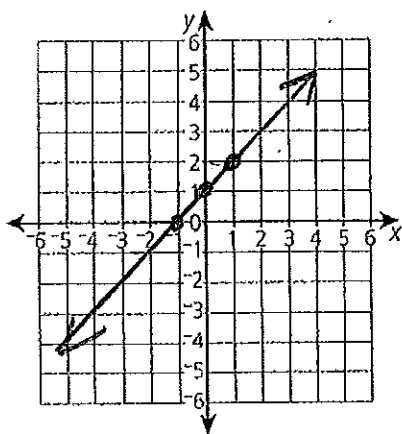
5. What makes a function linear?

- constant rate of change
- for every input there is one & only one output

6.  $y = \frac{1}{2}x + 2$



7.  $y = x - 1$



\* look at b (y-intercept)  
 \* Find slope

or  
 make tables for each  
 graph and see which (x, y)  
 values work in the equation (2)

Interpreting with Functions

1. What is the slope of the table?

x	y
-2	-5
-1	-2
0	1
1	4
2	7

+1 { +3  
+1 { +3  
+1 { +3

The slope is  $\frac{3}{1}$

2. What is the y-intercept of the table?

x	y
-2	-5
-1	-2
0	1
1	4
2	7

(0, 1)

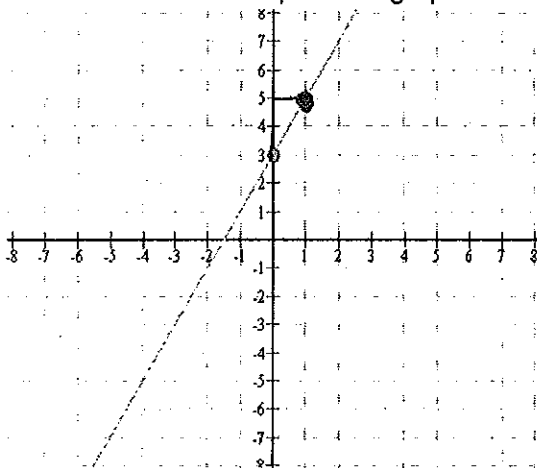
3. Jillian purchased a car for \$1500. After she drives it off of the lot, it begins to depreciate at a rate of \$120 per year. Identify the y-intercept or "starting point".

\$1500

4. Jillian purchased a car for \$1500. After she drives it off of the lot, it begins to depreciate at a rate of \$120 per year. Identify the slope for this situation.

-\$120/year

5. What is the slope of the graph?



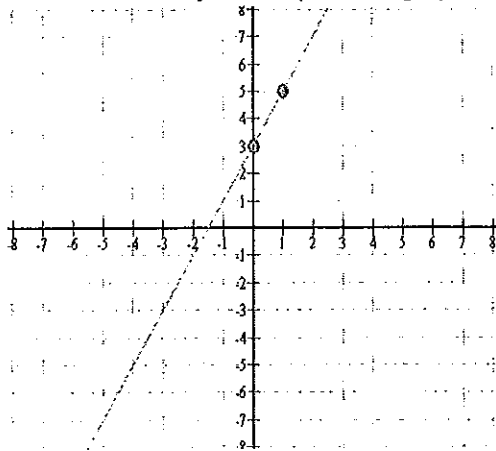
up 2 over 1

$\frac{2}{1}$

(0, 3)

(1, 5)

5. What is the y-intercept of the graph?



$(0, 3)$

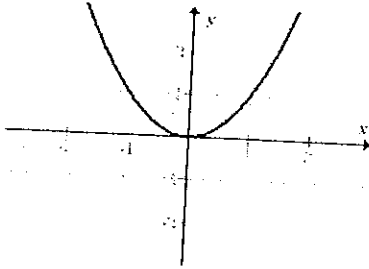
6. Heidi earned \$25 from babysitting. She then saved money from her allowance which was \$10 per week. Identify the y-intercept and the slope for this situation.

y intercept \$25  
Slope \$10/week

Linear vs. Non-linear

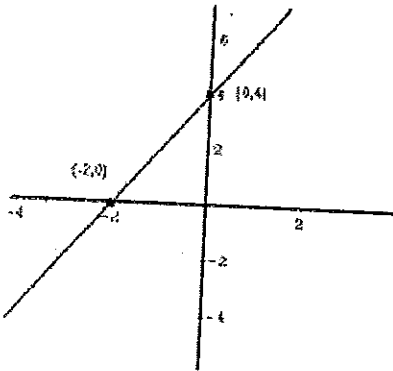
Determine if the graph, table, or mapping is linear or non-linear.

1.



non-linear

2.



linear

3.

x	y	difference of y-values
-2	-4	-1 + 4 = 3
-1	-1	
0	2	2 + 1 = 3
1	5	5 - 2 = 3
2	8	8 - 5 = 3

linear  
(constant rate of change)

4.

x	y
1	1
2	8
3	27
4	64
5	125
6	216
7	?

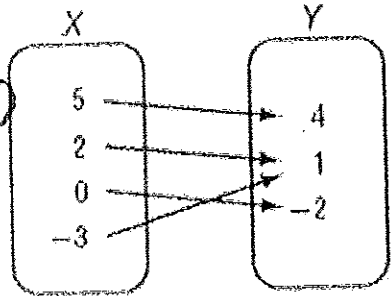
7  
19  
37

non-linear  
(not a constant rate of change)

5.



- make ordered pairs
- put in numerical order
- find r.o.c.



non-linear

$$\begin{aligned}
 & (5, 4) - 3 \begin{pmatrix} 3 & 1 \\ 0 & -2 \end{pmatrix} - 3 \\
 & (2, 1) + 2 \begin{pmatrix} 2 & 1 \\ 5 & 4 \end{pmatrix} + 3 \\
 & (0, -2) \\
 & (-3, 1)
 \end{aligned}$$

6.

$$y = 3x + 2$$

linear

7.

$$y = x^2$$

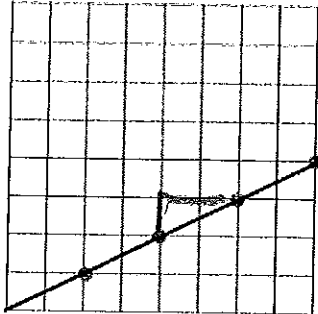
nonlinear  
(exponent greater than 1)

Comparing Rates of Change

1. Which has the greater rate of change, the graph or the equation?

$y = 2x + 1$

$m = 2$



$\frac{1}{2}$

2.

Which has the greater rate of change, the situation or the equation?

Stephanie climbs two steps at a time.

2 steps  
time

$y = x + 5$   $\frac{1}{1}$

3.

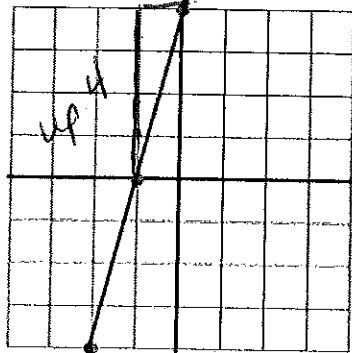
Which has the greater rate of change, the graph, the equation or the ordered pairs?

$y = 6x + 4$

$m = 6$

(0,3) (3,6) (6,9) (12,12)

$m = 1$



$m = \frac{4}{1}$

3 ( 0 3 ) 3  
3 ( 3 6 ) 3  
6 9  
12 12

4. Which scenario represents a greater speed? (Hint: Find the rate of change)

Scenario 1

	Time (Hours)	Distance (Miles)
1	2	110
2	3	165
	5	275
1	6	330

55m  
hour

Scenario 2

$$d = 60t$$

where  $d$  represents distance (miles) and  $t$  represents time (hours)



$$\frac{60 \text{ miles}}{1 \text{ hr}}$$