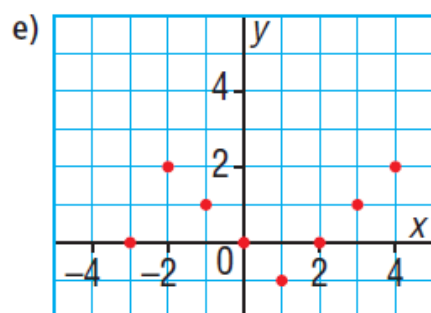
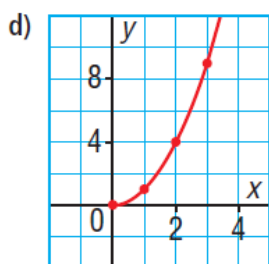
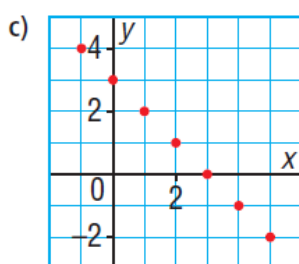
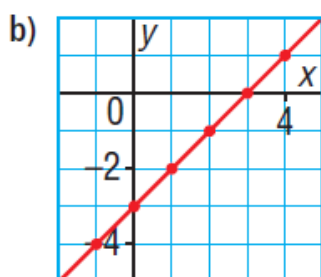
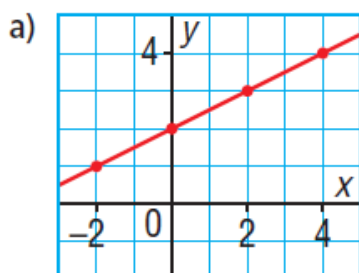


4. Which graphs represent a linear relation?  
How do you know?



5. For each table of values below:

- i) Does it represent a linear relation?
- ii) If the relation is linear, describe it.
- iii) If the relation is not linear, explain how

a)

$x$	$y$
1	4
2	13
3	22
4	31
5	40

b)

$x$	$y$
9	8
8	11
7	14
6	17
5	20

7. Copy and complete each table of values.

a)  $y = 2x$

$x$	$y$
—	—
—	—
—	—
—	—
—	—

d)  $y = x - 2$

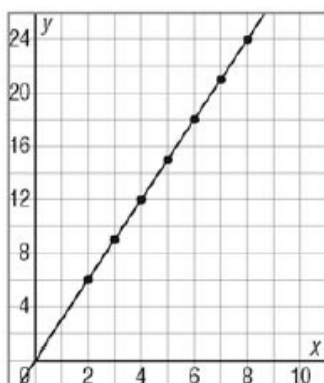
$x$	$y$
—	—
—	—
—	—
—	—
—	—

8. Here is a partially completed table of values for a linear relation.

$x$	2	3	4	5	6	7	8
$y$				15	18		

- Determine the missing values of  $y$ . Explain how you found these values.
- Describe the patterns in the table.
- Write an equation that represents the linear relation. How do you know that your equation is correct?
- Graph the data. How are the patterns you described in part b shown in the graph?
- Suppose you want to determine the value of  $y$  when  $x = -1$ . How could you use the table and equation to do this?

d)



9. Each table of values represents a linear relation. Copy and complete each table. Explain your reasoning.

a)

$x$	$y$
2	11
3	14
4	
5	
6	

c)

$x$	$y$
-4	
-2	7
0	3
2	
4	

10. Create a table of values for each linear relation, then graph the relation.  
Use values of  $x$  from  $-2$  to  $2$ .

a)  $y = 3x$

$x$	$y$

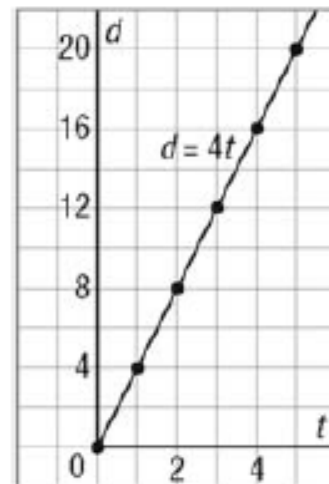
c)  $y = x - 3$

$x$	$y$

e)  $y = 1 - 4x$

$x$	$y$

11. Jin is cycling at an average speed of 4 m/s. He travels a distance,  $d$  metres, in  $t$  seconds.
- Write an equation that relates  $d$  and  $t$ .
  - Create a table of values for this relation.
  - Graph the data. Should you join the points? Explain your reasoning.
  - Is the relation between distance and time linear?
    - How do you know from the table of values?
    - How you know from the graph?
  - How far does Jin travel in 3.5 h?
  - What time does it take Jin to travel 17 km?



- 14. Assessment Focus** Danica is having a party. She estimates that she will need 3 pieces of pizza for each guest invited, and 6 extra pieces in case someone shows up unexpectedly.
- Explain why this situation can be represented by the equation  $P = 3n + 6$ . What do  $P$  and  $n$  represent in the equation?
  - Make a table of values for the relation.
  - Graph the data. Will you join the points on the graph? Explain.
  - Is the relation linear?
    - How do you know from the table of values?
    - How do you know from the graph?
  - If the relation is linear, explain what this means in the context of this situation.



15. A small plane is at a height of 1800 m when it starts descending to land.  
The plane's height changes at an average rate of 150 m per minute.
- Choose variables to represent the height in metres and the time in minutes since the plane began its descent. Write an equation that relates the height to the time.
  - Graph the equation.
  - What is the height of the plane 6 min after it began its descent?
  - When is the plane 100 m above the ground?



16. Jada rollerblades from Regina to Saskatoon to raise funds for cancer research. The trip 250 km. Jada estimates that she can rollerblade at an average speed of 8 km/h.



- a) Choose variables to represent the time Jada has travelled in hours and the distance in kilometres that she has yet to travel. Write an equation that