

**Before Break Review!****Problem**

1. The pattern in the table continues.

$n$	1	2	3
$P$	7	11	15

- a) Describe the pattern that relates  $P$  to  $n$ .  
b) Write an equation that relates  $P$  to  $n$ .
2. A phone company charges a fixed cost of \$2.35 per month, plus \$0.53 per minute for local calls and \$1.07 per minute for long distance calls.
- a) Write an equation that relates the total monthly cost,  $B$  dollars, to the local calls,  $p$  minutes, and long distance calls,  $q$  minutes.  
b) Determine the phone bill for a month in which 53 min of local calls and 31 min of long distance calls were made.
3. The pattern in this table continues.

<b>Term Number, <math>n</math></b>	1	2	3	4	5
<b>Term Value, <math>v</math></b>	-5	-2	1	4	7

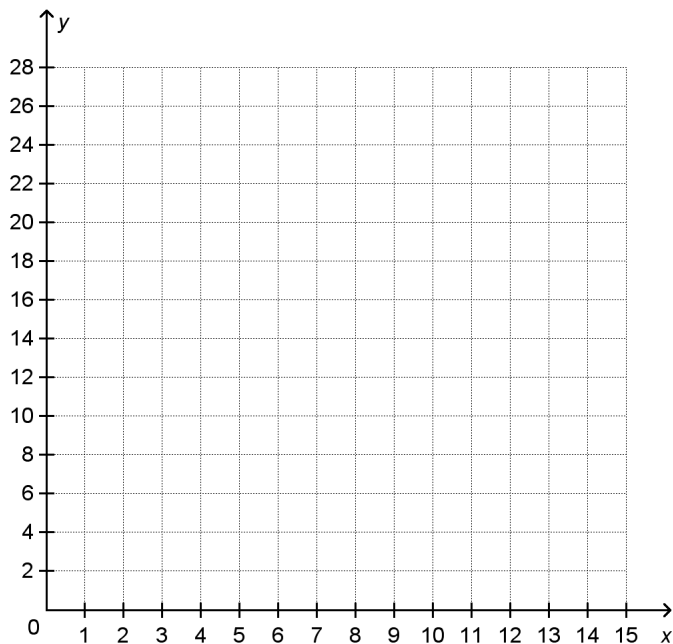
- a) Write an equation that relates the term value,  $v$ , to the term number,  $n$ . Describe the pattern.  
b) Determine the value of  $v$  when  $n = 21$ .  
c) Which term number has a term value of 82?
4. A balloon is floating at a height of 10 000 m. It starts to descend at a steady rate. This table shows the height of the balloon every minute after it begins its descent.

<b>Time (<math>t</math> min)</b>	0	1	2	3	4
<b>Height (<math>h</math> m)</b>	10 000	9700	9400	9100	8800

- a) Write an equation that relates the height of the balloon,  $h$ , to the time since it started its descent,  $t$ . Describe the pattern.  
b) What is the height of the balloon after 9 min?  
c) How long after starting its descent does the balloon touch ground?

5. Ian has to buy muffins and drinks for a basketball tournament. He estimates that he will need  $1\frac{1}{2}$  muffins and 2 drinks for each person at the tournament. Muffins cost \$0.58 each and drinks cost \$0.65 a bottle.
- Write an equation that relates the total cost of the muffins and drinks,  $C$  dollars, to the number of people at the tournament,  $p$ .
  - Calculate the total cost of muffins and drinks for 70 people.
6. a) Create a table of values for the relation  $y = 1.5x + 3$ , then graph the relation.  
Use 0, 2, 4, 6, 8, 10 as values of  $x$ .

$x$	0	2	4	6	8	10
$y$						



- Is the relation linear? How do you know?
- What is the value of  $y$  when  $x = 33$ ?

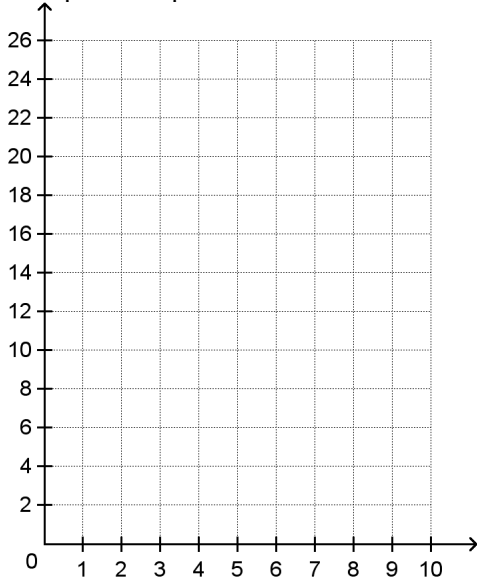
Name: \_\_\_\_\_

ID: A

7. Amir went to a pie-tasting festival. The festival charges an admission fee of \$3.00, plus \$2.00 for every slice of pie you eat.

a) Write an equation that relates the total cost,  $C$  dollars, to the number of slices of pie you eat,  $r$ .

b) Graph the equation. Which variable will you plot on the horizontal axis? Explain your reasoning.



c) Will you join the points on the graph? Explain.

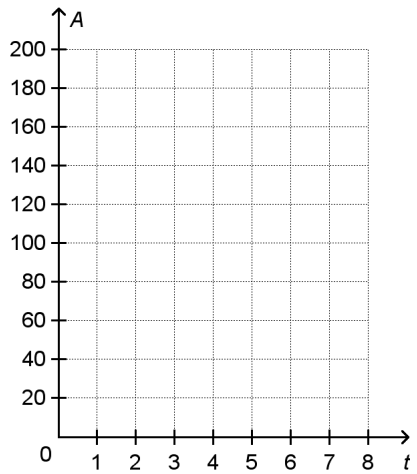
d) If Amir spent \$17.00, how many slices of pie did he eat?

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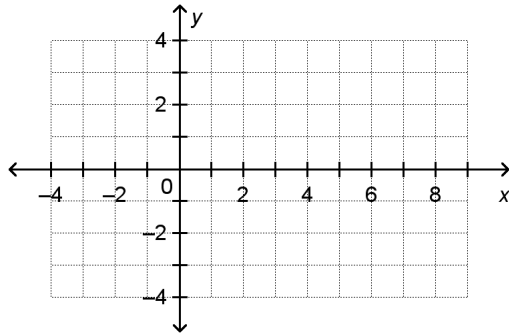
8. Geoffrey has \$130 in his savings account. Each week he withdraws \$20.
- Write an equation that relates the amount of money in his account,  $A$  dollars, after  $t$  weeks.
  - Create a table of values for the relation, then graph the relation. Use values of  $t$  from 0 to 6. Will you join the points on the graph? Explain.

$t$	0	1	2	3	4	5	6
$A$							

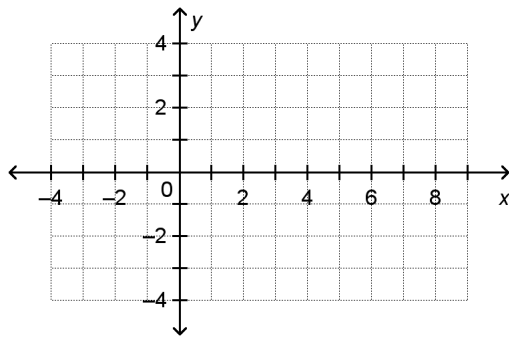


- At what point will Geoffrey have \$50.00 in his account?

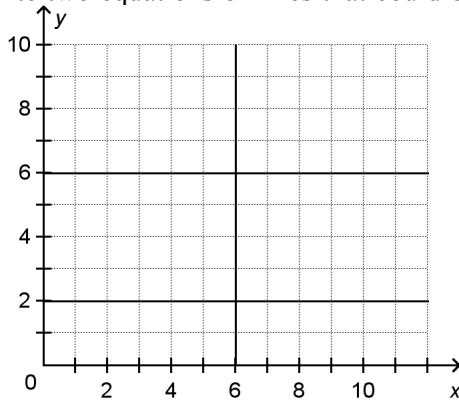
9. a) Graph the following lines on the same grid. What shape do they form?
- i)  $x + 3y = 9$
  - ii)  $x - 3y = 9$
  - iii)  $x + y = -3$
  - iv)  $x - y = -3$



- b) When Joan graphed the lines she made a mistake. Instead of graphing  $x + y = -3$  and  $x - y = -3$ , she graphed  $x + y = 3$  and  $x - y = 3$ .  
What did Joan's graph look like?

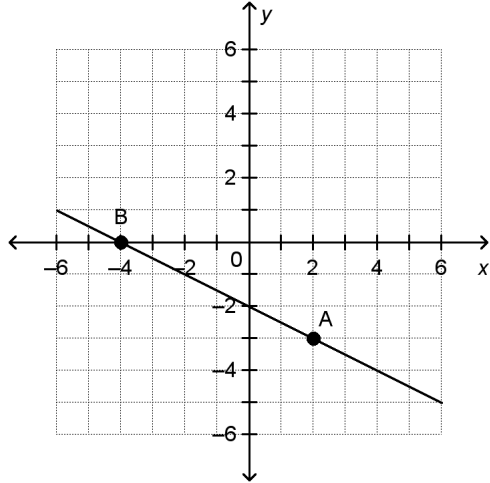


10. The graph below shows three lines.
- a) Write an equation to describe each line.
  - b) Write an equation of a line that could be added to form a rectangle.
  - c) Write two equations of lines that could be added to form a square.



11. Two points on the graph below have coordinates  $A(2,-3)$  and  $B(-4,0)$ . Which equation matches the graph? Show your work.

- i)  $y = x + 3$
- ii)  $x = 2 + y$
- iii)  $x + 2y = -4$



12. a) Which square on the grip below is formed by the equations of these lines?  
 $x = 6; x = 8; y = 2; y = 4$
- b) Which equations form square A?  
 $x = 10; y = 2; y = 10; x = 0; x = 2; x = 8; y = 0; y = 8$

