

Linear Relations - word problems

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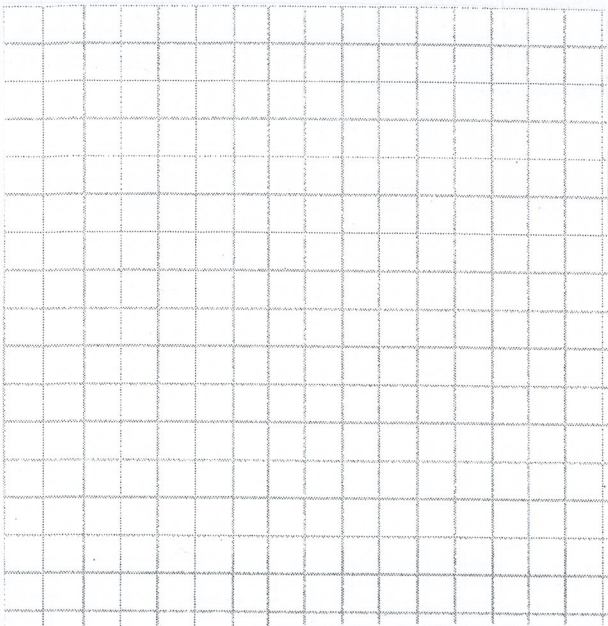
Block: \_\_\_\_\_

① As you climb a mountain, the temperature drops  $1^\circ\text{C}$  for every 150 m of increased height.

a) complete the table to show the relationship between height and temperature if the temperature at the bottom of the mountain is  $20^\circ\text{C}$ .

<b>Height (m)</b>	0	150	300	450	600	750
<b>Temperature (<math>^\circ\text{C}</math>)</b>	20					

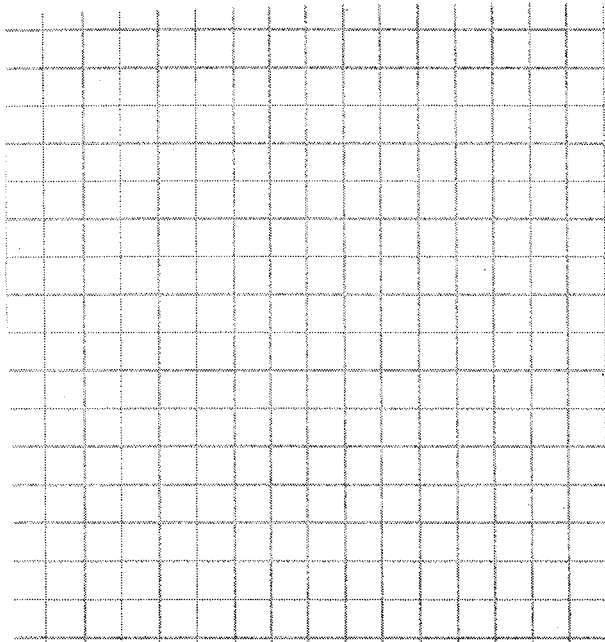
- b) Graph the ordered pairs
- c) Is the relationship linear?
- d) How high have you climbed if the temperature is  $13^\circ\text{C}$ ?



② Evan has \$6 in quarters and dimes.



- a) Name five combinations of quarters and dimes that Evan might have.
- b) Make a table of values showing the relationship between quarters and dimes. Include five pairs of values in your table.
- c) Draw a graph. Is the relationship between quarters and dimes linear in this example? Explain.
- d) What is the largest possible number of dimes? of quarters?



3 The following pattern continues.



Figure 1

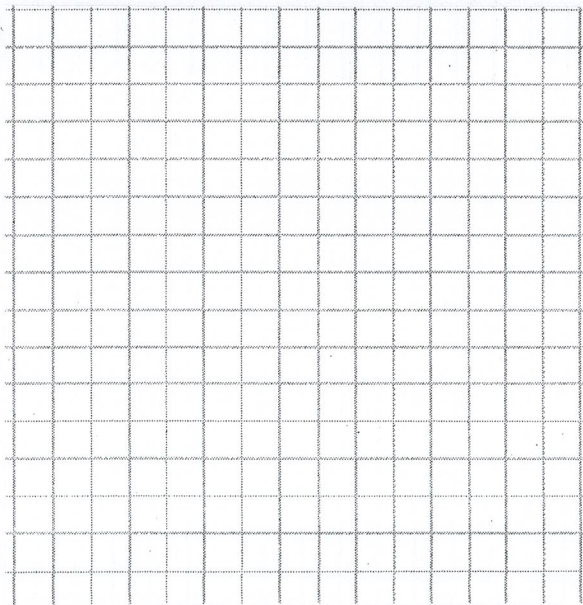


Figure 2



Figure 3

- Make a table of values showing the figure number and the number of squares for the first six figures.
- Write an expression showing the number of squares in terms of the figure number. What does your variable represent?
- How many squares would appear in Figure 20?
- How many more squares are in Figure 20 than in Figure 10? Show two ways to find the answer.



4 The following pattern of squares continues.



- a) Complete the table of values below that shows the relationship between the number of squares and the perimeter of each figure.

<b>Number of Squares</b>	1	2		
<b>Perimeter (cm)</b>	4	6		

- b) Draw a graph from the table of values.  
c) Describe the patterns on the graph.  
d) What is an expression for the perimeter in terms of the number of squares?  
e) If the pattern continues, what is the perimeter when there are 50 squares?

