LESSON MAKER PRO

Graph the Pattern

Write a rule, graph it, and predict what comes next.

GRADE 7 · 7A.AF.C.19

7A.AF.C.19 "Create equations in two variables to represent relationships between quantities in context; graph equations on coordinate axes with labels and scales and use them to make predictions. Limit to contexts arising from linear functions."

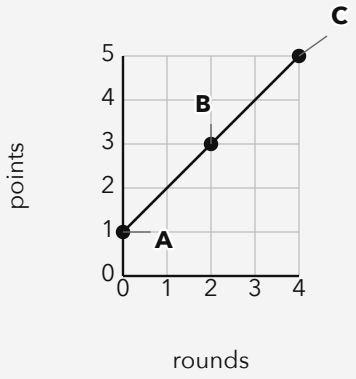
NAME _____ DATE _____

START AND CHANGE

For a steady change, write y = mx + b. The starting amount is b, and m tells how much y changes when x increases by 1. Label the axes, plot points, and use the pattern to predict another value.

WORKED EXAMPLE

The graph shows game points after x rounds. Write an equation for y points, then predict the points after 3 rounds.



1. Read (0, 1) and (2, 3) from the graph.
2. The start is 1. A rise of 2 over a run of 2 gives a rate of 1.
3. Write y = x + 1. At x = 3, y = 4.

Answer: y = x + 1; 4 points

PRACTICE 4 problems

1 A craft kit costs $3 plus $2 per charm. Write y, the total cost, for x charms. Find the cost of 4 charms.

ANSWER _____

2 You start a game with 5 points and gain 3 points per round. Write y for x rounds. Find y after 2 rounds.

ANSWER _____

3 A photo app has 7 stickers and adds 4 each day. Write y for x days. Give the points to plot when x = 0 and x = 2.

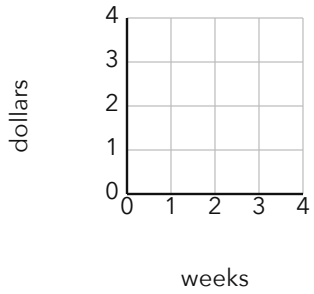
ANSWER _____

4 A bike rental costs $9 plus $5 per hour. Write y, the cost, for x hours. Predict the cost for 3 hours.

ANSWER _____

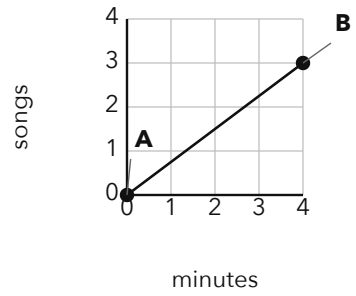
APPLY IT Show your work

1 You have $2 saved and add $0.50 each week. Write y dollars for x weeks. Plot (0, 2), (2, 3), and (4, 4) on the grid and connect them. Predict your savings after 6 weeks.



ANSWER _____

2 The graph shows songs downloaded after x minutes. Write an equation for y songs. Predict how many songs are downloaded after 8 minutes.



ANSWER _____

CHALLENGE One step up

One game pass costs $8 plus $2 per visit. Another costs $4 plus $3 per visit. Write an equation for each pass, with x visits and y dollars. When will they cost the same?

WORK SPACE AND ANSWER

ANSWER KEY

Graph the Pattern

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A craft kit costs $3 plus $2 per charm. Write y, the total cost, for x charms. Find the cost of 4 charms.	**y = 2x + 3; $11**
2	You start a game with 5 points and gain 3 points per round. Write y for x rounds. Find y after 2 rounds.	**y = 3x + 5; 11 points**
3	A photo app has 7 stickers and adds 4 each day. Write y for x days. Give the points to plot when x = 0 and x = 2.	**y = 4x + 7; (0, 7) and (2, 15)**
4	A bike rental costs $9 plus $5 per hour. Write y, the cost, for x hours. Predict the cost for 3 hours.	**y = 5x + 9; $24**

PART 2 · APPLY IT

1. **y = x/2 + 2; line through (0, 2), (2, 3), and (4, 4); $5 after 6 weeks** The starting amount is $2, and the weekly change is $0.50. Substitute x = 6 to get y = 6/2 + 2 = 5.
2. **y = 3x/4; 6 songs** The graph starts at 0 and rises 3 songs in 4 minutes, so the rate is 3/4 song per minute. At x = 8, y = 3(8)/4 = 6.

CHALLENGE

First pass: y = 2x + 8. Second pass: y = 3x + 4. They both cost $16 at 4 visits.

Accept equivalent equations, including y = 0.5x + 2 and y = 0.75x. In the first word problem, accept a straight line through the three required points.