LESSON MAKER PRO

Changing Together

Write equations, read graphs, and connect quantities.

GRADE 6 · 6.EE.C.9

CCSS.Math.Content.6.EE.C.9 "Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity..."

NAME _____ DATE _____

TRACK THE CHANGE

The independent quantity is the input. The dependent quantity changes because of the input. In s=10d+4, d is the input, and a table or graph can show matching values of d and s.

WORKED EXAMPLE

A fountain fills 13 bottles each minute. The number line marks the time, m, in minutes. Let b be the number of bottles. Write b in terms of m. Then find b at the marked point.



1. The marked time is m=6.
2. Write b=13m.
3. Substitute: b=13(6)=78.

Answer: b=13m; 78 bottles

PRACTICE 4 problems

1 A plant grows 5 cm each week. Let h be centimeters grown and w be weeks. Write h in terms of w.

ANSWER _____

2 A worker earns these amounts: (2, 16), (3, 24), and (5, 40), where x is hours and e is dollars. Which quantity is dependent? Write e in terms of x.

ANSWER _____

3 A streaming service charges $9 to start and $4 per movie. The cost is c=9+4m. Find c for 3 movies.

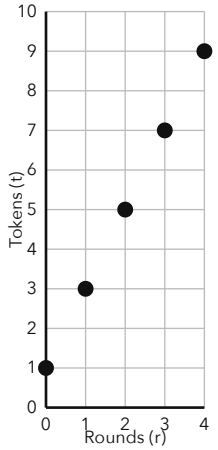
ANSWER _____

4 A tank has 30 L of water and loses 2 L each minute. Let L be liters and t be minutes. Write L in terms of t.

ANSWER _____

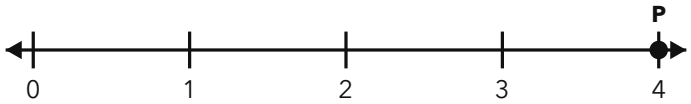
APPLY IT Show your work

1 The grid shows tokens earned after game rounds. Let r be rounds and t be tokens. Write t in terms of r. Which quantity is dependent? How many tokens are earned after 4 rounds?



ANSWER _____

2 A musician gets 11 likes for each song uploaded. The number line shows songs uploaded, and point P marks one amount. Let l be likes and s be songs. Write l in terms of s. Find the likes at P.



ANSWER _____

CHALLENGE One step up

An arcade costs $12 for 1 hour, $18 for 3 hours, and $24 for 5 hours. Let c be cost and h be hours. Write c in terms of h. Explain what each number in your equation means.

WORK SPACE AND ANSWER

ANSWER KEY

Changing Together

GRADE 6 · 6.EE.C.9

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A plant grows 5 cm each week. Let h be centimeters grown and w be weeks. Write h in terms of w.	**h=5w**
2	A worker earns these amounts: (2, 16), (3, 24), and (5, 40), where x is hours and e is dollars. Which quantity is dependent? Write e in terms of x.	**e is dependent; e=8x**
3	A streaming service charges $9 to start and $4 per movie. The cost is c=9+4m. Find c for 3 movies.	**$21**
4	A tank has 30 L of water and loses 2 L each minute. Let L be liters and t be minutes. Write L in terms of t.	**L=30-2t**

PART 2 · APPLY IT

1. **t=2r+1; t is dependent; 9 tokens** The tokens increase by 2 for each round, and the graph starts at 1 token. Use t=2r+1, then substitute r=4.
2. **l=11s; 44 likes** Point P is at 4 songs. Multiply 11 likes per song by 4.

CHALLENGE

c=3h+9; 3 is the cost per hour, and 9 is the starting fee.

Accept equivalent equation forms, such as h=5w or 5w=h. For the challenge, accept clear descriptions of the $3 hourly rate and $9 starting fee.