

Inputs Make Outputs

Use equations, tables, and graphs to track changing quantities.

GRADE 6 • NY-6.EE.9

NY-6.EE.9 "Use variables to represent two quantities in a real-world problem that change in relationship to one another. Given a verbal context and an equation, identify the dependent variable, in terms of the other quantity..."

NAME _____

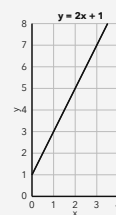
DATE _____

FOLLOW THE INPUT

The independent variable is the input you choose. The dependent variable changes because of that input, and an equation, table, or graph can show the relationship.

WORKED EXAMPLE

Use the graph. Identify the independent and dependent variables. Then find y when $x = 3$.



1. x is on the horizontal axis, so it is independent.
2. y is on the vertical axis, so it is dependent.
3. At $x = 3$, the line reaches $y = 7$.

**Answer: Independent variable: x .
Dependent variable: y . When $x = 3$, $y = 7$.**

PRACTICE 4 problems

- 1** For $q = 5r$, identify the independent and dependent variables. Then find q when $r = 4$.

ANSWER _____

- 2** In $y = 6x + 8$, name the dependent variable. Then find y when $x = 5$.

ANSWER _____

- 3** A skateboard shop charges \$9 per grip tape. The cost is $c = 9g$, where g is the number of grip tapes. Is c dependent or independent? Find c when $g = 4$.

ANSWER _____

- 4** For $y = 4x$, x changes from 5 to 8. How much does y change?

ANSWER _____

APPLY IT Show your work

- 1** Use the table for a game app. Which variable is independent? Write c in terms of r . How many coins are earned after 12 rounds?

GAME COINS

Rounds (r)	Coins (c)
0	8
4	24
8	40

ANSWER _____

- 2** A music app playlist has 6 songs. You add 5 songs each week. Let w be weeks and s be total songs. Identify the dependent variable, write an equation, and find s at $w = 8$.

WORK SPACE

ANSWER _____

CHALLENGE One step up

The number line marks n . A club's points follow $p = 4n + 5$. Find p . If n increases by 6, how much does p increase? Explain.



WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	For $q = 5r$, identify the independent and dependent variables. Then find q when $r = 4$.	Independent variable: r. Dependent variable: q. $q = 20$.
2	In $y = 6x + 8$, name the dependent variable. Then find y when $x = 5$.	Dependent variable: y. $y = 38$.
3	A skateboard shop charges \$9 per grip tape. The cost is $c = 9g$, where g is the number of grip tapes. Is c dependent or independent? Find c when $g = 4$.	c is dependent. $c = \\$36$.
4	For $y = 4x$, x changes from 5 to 8. How much does y change?	y increases by 12.

PART 2 • APPLY IT

- Independent variable: r . $c = 4r + 8$. At 12 rounds, $c = 56$ coins.** Coins increase by 16 when rounds increase by 4, so the rate is 4 coins per round. The table starts at 8 coins.
- Dependent variable: s . $s = 5w + 6$. At 8 weeks, $s = 46$ songs.** The total songs depend on the number of weeks. Multiply weeks by 5, then add the 6 starting songs.

CHALLENGE

$p = 41$. p increases by 24 because each increase of 1 in n adds 4 points, and $6 \times 4 = 24$.

Accept equivalent wording for independent and dependent variables. Accept equations with the terms reversed, such as $c = 8 + 4r$.