

Constant Rate Routes

Connect tables, equations, and real situations with $d = rt$.

GRADE 7 • TEKS 7.4.A

7.4.A "represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$;"

NAME _____

DATE _____

RATE, TIME, DISTANCE

At a constant rate, use $d = rt$, where d is distance, r is rate, and t is time. To find a rate, divide distance by time. Keep the units connected, such as miles per hour.

WORKED EXAMPLE

A ferry travels 60 miles in 5 hours at a constant speed. What is its speed?

1. Use $r = d / t$.
2. Substitute: $r = 60 / 5$.
3. Divide: $r = 12$.

Answer: 12 miles per hour

PRACTICE 6 problems

- 1** Use the table. Find the rate and the distance traveled in 4 hours.

COURIER DISTANCE

Time (hours)	Distance (miles)
1	7
2	14
3	21

ANSWER _____

- 2** A music app downloads 24 songs in 6 minutes at a constant rate. How many songs does it download each minute?

ANSWER _____

- 3** A turtle crawls $\frac{3}{4}$ meter each minute. How far does it crawl in 8 minutes?

ANSWER _____

- 4** A distance is modeled by $d = 9t$. What is d when $t = 7$?

ANSWER _____

- 5** A delivery drone travels 48 meters in 6 seconds at a constant rate. Write an equation for its distance d after t seconds.

ANSWER _____

- 6** A hiker walks 30 kilometers in 10 hours at a constant rate. How far does the hiker walk in 9 hours?

ANSWER _____

APPLY IT Show your work

- 1** During a gaming tournament, a screen records 15 points each minute at a constant rate. How many points will it record after 8 minutes?

WORK SPACE

ANSWER _____

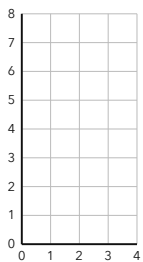
- 2** An online art project uploads $\frac{2}{3}$ gigabyte of images each minute at a constant rate. How many gigabytes of images upload in 15 minutes?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A small robot moves at a constant rate described by $d = 2t$, where d is distance in meters and t is time in minutes. On the grid, graph the relationship. Then use the graph to find the distance when $t = 4$. Explain how the graph shows a constant rate.



WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Use the table. Find the rate and the distance traveled in 4 hours.	7 miles per hour; 28 miles
2	A music app downloads 24 songs in 6 minutes at a constant rate. How many songs does it download each minute?	4 songs per minute
3	A turtle crawls $\frac{3}{4}$ meter each minute. How far does it crawl in 8 minutes?	6 meters
4	A distance is modeled by $d = 9t$. What is d when $t = 7$?	63
5	A delivery drone travels 48 meters in 6 seconds at a constant rate. Write an equation for its distance d after t seconds.	$d = 8t$
6	A hiker walks 30 kilometers in 10 hours at a constant rate. How far does the hiker walk in 9 hours?	27 kilometers

PART 2 • APPLY IT

- 120 points** Multiply the constant rate by time: $15 \times 8 = 120$.
- 10 gigabytes** Multiply the rate by time: $\frac{2}{3} \times 15 = 10$.

CHALLENGE

8 meters; the graph rises 2 meters for each 1 minute.

Accept equivalent unit wording and equations with the same variable meanings. For the challenge, accept a straight line through (0,0) and (4,8) plus a statement that each 1-minute increase adds 2 meters.