

Rate Word Problems

Vicky reads at a constant rate. She can read 5 pages in 9 minutes. We want to know how many pages, p , Vicky can read after t minutes.

a) Write a linear equation in two variables that represents the number of pages Vicky reads in any given time interval.

b) Complete the table below. Use a calculator, and round answers to the tenths place.

t (time in minutes)	Linear Equation:	p (pages read)
0		
20		
40		
60		

c) About how long would it take Vicky to read 25 pages? Explain.

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Vicky reads at a constant rate. She can read 5 pages in 9 minutes. We want to know how many pages, p , Vicky can read after t minutes.

a) Write a linear equation in two variables that represents the number of pages Vicky reads in any given time interval.

Let C represent the constant rate that Vicky reads in pages per minute. Then,

$$\frac{5}{9} = C, \text{ and } \frac{p}{t} = C; \text{ therefore, } \frac{5}{9} = \frac{p}{t}.$$

$$\frac{5}{9} = \frac{p}{t}$$

$$9p = 5t$$

$$\frac{9}{9}p = \frac{5}{9}t$$

$$p = \frac{5}{9}t$$

b) Complete the table below. Use a calculator, and round answers to the tenths place.

t (time in minutes)	Linear Equation: $p = \frac{5}{9}t$	p (pages read)
0	$p = \frac{5}{9}(0)$	0
20	$p = \frac{5}{9}(20)$	$\frac{100}{9} \approx 11.1$
40	$p = \frac{5}{9}(40)$	$\frac{200}{9} \approx 22.2$
60	$p = \frac{5}{9}(60)$	$\frac{300}{9} \approx 33.3$

c) About how long would it take Vicky to read 25 pages? Explain.

It would take her a little over 40 minutes. After 40 minutes, she can read about 22.2 pages, and after 1 hour, she can read about 33.3 pages. Since 25 pages is between 22.2 and 33.3, it will take her between 40 and 60 minutes to read 25 pages.

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