

2.4 Distance Word Problems

$d = r t$

set up charts:

	r	t	d
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Fill in with information from the reading.

NOT FOUND in reading Use $d = r t$

**Clarify the relationship of the distances
Combine to be a total → add

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1. Sabrina drove from her home to her mother's home, which is 150 miles away. For the first half hour, she drove on local roads. For the next two hours she drove on an interstate highway and increased her average speed by 15 miles per hour. Find Sabrina's average speed on the local roads and on the interstate highway.

let x = rate for local roads
 $x + 15$ = rate for interstate

	r	t	d = rt
local	x	0.5	$0.5x$
interstate	$x + 15$	2	$2(x + 15)$

$d_{\text{local}} + d_{\text{interstate}} = 150$

$$0.5x + 2(x + 15) = 150$$

$$0.5x + 2x + 30 = 150$$

$$2.5x + 30 = 150$$

$$2.5x = 150 - 30$$

$$2.5x = 120$$

$$x = \frac{120}{2.5}$$

$$x = 48$$

local: $x = 48$
interstate: $x + 15 = 48 + 15 = 63$

local roads 48 mph
interstate 63 mph

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2. Two trains traveled in opposite directions from the same starting point. The rate of one train was 20 km/hr faster than the rate of the other. After 2 hours, they were 360 km apart. Find the rate of each train.

let x = rate Train 1
 $x + 20$ = rate Train 2

	r	t	d
Train 1	x	2	$2x$
Train 2	$x + 20$	2	$2(x + 20)$

$d_{\text{Train 1}} + d_{\text{Train 2}} = 360$

$$2x + 2(x + 20) = 360$$

$$2x + 2x + 40 = 360$$

$$4x + 40 = 360$$

$$4x = 360 - 40$$

$$4x = 320$$

$$x = \frac{320}{4}$$

$$x = 80$$

Train 1	Train 2
x	$x + 20$
80	80 + 20
	100

Train 1 = 80 km/hr
Train 2 = 100 km/hr

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HOMEWORK

Worksheet - HW 2.4 Distance Problems

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