Strategy 1 for solving these problems

distance = rate · time

Group Members: r t = r t

Working as a *team* solve each problem using d = rt formula. Make sure you are following your role within the team. We should be "bouncing" ideas off of one another by asking questions, clarifying what was said, adding information to the problem, and/or suggestions for solving. By the time you solve these problems everyone in your group should know exactly how to do it so make sure everyone understands the problem and how to work it out. You are solving algebraically.

1. A train leaves a train station at 1p.m. It travels at an average rate of 60 mi/h. A high speed train leaves the same station an hour later. It travels at an average rate of 96 mi/h. The second train follows the same route as the first train on a track parallel to the first. In how many hours will the second train catch up with the first train?

	d	r	t
Train 1		60 mi/h	t
Train 2		96 mi/h	t-1

distance is equal to one another

Train 1 = Train 2

$60t = 96(t-1)$

$60t = 96t - 96$

$-96t \quad -96t$

$\frac{-36t}{-36} = \frac{-96}{-36}$

$t = 2\frac{2}{3}$ hours how long it takes Train 1 to travel

$t-1$

$2\frac{2}{3} - 1$

$1\frac{2}{3}$ hours how long it takes Train 2

2. A group of campers and one group leader left a campsite in a canoe. They traveled at an average rate of 10 km/h. Two hours later, the other group leader left the campsite in a motorized boat. He traveled at an average rate of 22 km/h.
   a. How long after the canoe left the campsite did the motorized boat catch up with it? $3\frac{2}{3}$ hours
   b. How long did the motorized boat travel? $t-2$

$1\frac{2}{3}$ hours

	d	r	t
canoe		10 km/h	t
boat		22 km/h	t-2

distance is equal to one another

canoe = boat

$10t = 22(t-2)$

$10t = 22t - 44$

$-22t \quad -22t$

$\frac{-12t}{-12} = \frac{-44}{-12}$

$t = 3\frac{8}{12}$

$t = 3\frac{2}{3}$ hours (canoe)

Strategy 2 for solving these problems

distance = rate · time

$d = rt$

Group Members: _____

Working as a *team* solve each problem using d = rt formula. Make sure you are following your role within the team. We should be "bouncing" ideas off of one another by asking questions, clarifying what was said, adding information to the problem, and/or suggestions for solving. By the time you solve these problems everyone in your group should know exactly how to do it so make sure everyone understands the problem and how to work it out. You are solving algebraically.

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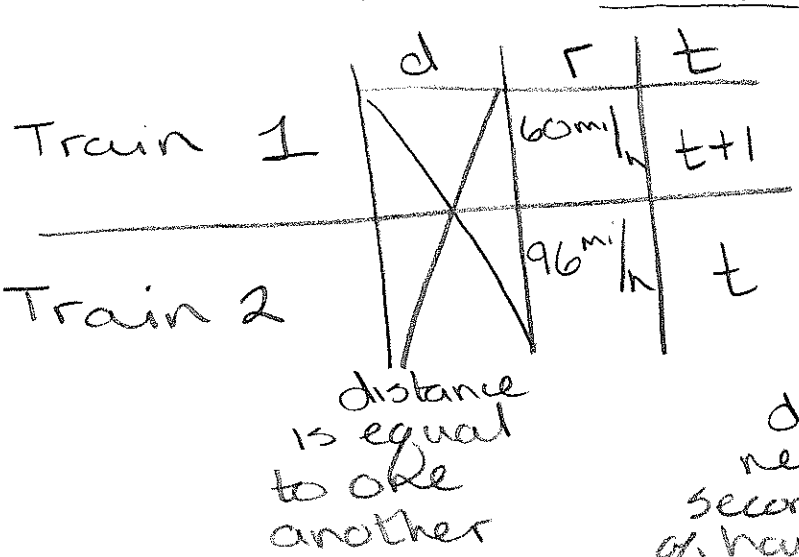


Train 1 = Train 2

$60(t+1) = 96t$

$60t + 60 = 96t$

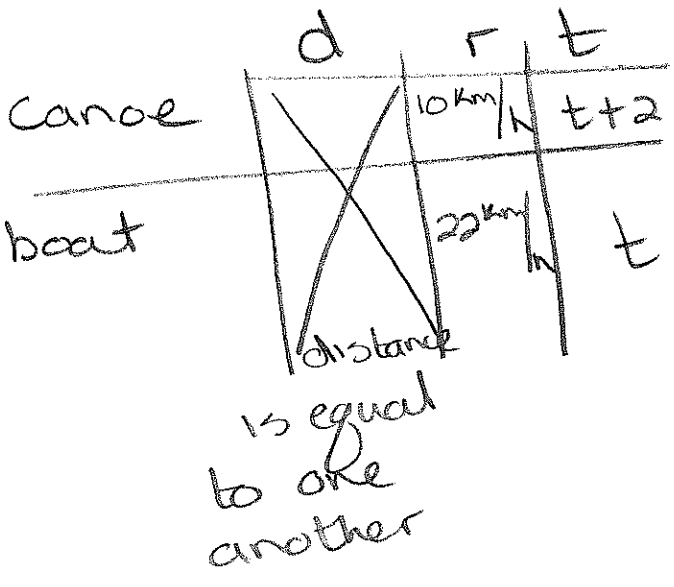
$-60t \quad -60t$

$\frac{60}{36} = \frac{36t}{36}$

didn't need a second step b/c of how variables were defined

$1\frac{2}{3} = t$ hours

2. A group of campers and one group leader left a campsite in a canoe. They traveled at an average rate of 10 km/h. Two hours later, the other group leader left the campsite in a motorized boat. He traveled at an average rate of 22 km/h.
   a. How long after the canoe left the campsite did the motorized boat catch up with it?
   b. How long did the motorized boat travel?



$10(t+2) = 22t$

$10t + 20 = 22t$

$-10t \quad -10t$

$\frac{20}{12} = \frac{12t}{12}$

$1\frac{8}{12} = t$

$1\frac{2}{3} = t$ hours

* Remember if you solve your equation & get a negative time something went wrong.

- Either you made an error with your positive & negatives

OR

- you defined your variables incorrectly.

Hint: If you are traveling faster than the other vehicle it should take LESS time

NOT more time.