Opposite Direction

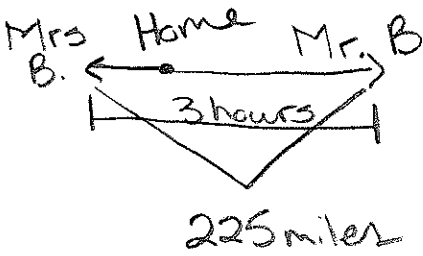**distance = rate · time**

$$d = rt + rt$$

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.

1. Mrs. Buckley and Mr. Buckley leave their home traveling in opposite directions on a straight road. Mr. Buckley drives 15 mi/h faster than Mrs. Buckley. After 3 hours, they are 225 miles apart. Find each of their rates.

Mrs. Home Mr. B
B.

3 hours

225 miles

$$d = rt + rt$$

	d	r	t
Mr. B	225	r+15	3
Mrs. B	225	r	3

$225 = 3(r+15) + 3r$

$225 = 3r + 45 + 3r$

$225 = 6r + 45$

$-45 \qquad\qquad -45$

$\dfrac{180}{6} = \dfrac{6r}{6}$

$\boxed{30 = r \text{ miles/hour}}$

Mrs. B 30 mi/h

Mr. B 45 mi/h

2. Sarah and John leave Camas traveling in opposite directions. Sarah drives 12 miles per hour faster than John. After 2 hours, they are 176 miles apart. How far away is John from Camas?

	d	r	t
Sarah	176 miles	r+12	2
John	176 miles	r	2

$$d = rt + rt$$

$176 = 2(r+12) + 2r$

$176 = 2r + 24 + 2r$

$176 = 4r + 24$

$-24 \qquad\qquad -24$

$\dfrac{152}{4} = \dfrac{4r}{4}$

$\boxed{38 = r \text{ miles/hour}}$

$d = rt$

$d = 38(2)$

$\boxed{d = 76 \text{ miles is what John drove}}$