Algebra 2H | **SECTION 9.6 WORD PROBLEMS** | Name_____

Distance Formula: $d = rt$ *(distance traveled = rate of speed x time traveled)*

Example 1. Sam can paddle his canoe 50 miles upstream against the current in the same time he can paddle 75 miles downstream with the current. The river current is flowing at 3 miles per hour. Find Sam's paddling rate in still water.

(r)

	r	$\cdot$ t	$=$ d
upstream	$r-3$	$\frac{50}{r-3}$	50
downstream	$r+3$	$\frac{75}{r+3}$	75

$$\frac{50}{r-3} = \frac{75}{r+3}$$

CK

$50 = 75$

$12 \quad 18$

$r = 15$ mph

Work Formula: $w = rt$ *(work completed = rate of work per unit of time x time worked)*

Example 2. Jeff can build a brick wall in 5 days. Sergio can build the same wall in 4 days. Working together, how long will it take them to build the wall?

per day

	r	$\cdot$ t	$=$ w
Jeff	$\frac{1}{5}$	t	$\frac{t}{5}$
Sergio	$\frac{1}{4}$	t	$\frac{t}{4}$

$$\frac{t}{5} + \frac{t}{4} = \frac{1}{\text{(job)}}$$

$$t = 2\frac{2}{9} \text{ days}$$

Example 3. A painter works on a job for 10 days and is then joined by his apprentice. Together they finish the job in 6 more days. The apprentice could have done the job on his own in 30 days. How long would it have taken the painter, working alone, to do the job?

	r	t	$= w$
painter	$\frac{1}{p}$	16	$\frac{16}{p}$
apprentice	$\frac{1}{30}$	6	$\frac{1}{5}$

$\frac{16}{p} = \frac{4}{5}$

$\frac{16}{p} + \frac{1}{5} = 1$

$p = 20$ days