

Name: _____

Formulas and Applications

- 1) Two trains start from the same station at the same time and travel in opposite directions. One train travels at an average rate of 40 mph, the other at 65 mph. In how many hours will they be 315 miles apart?
- 2) A grocer wishes to mix one-dirham coffee with 80-fils coffee to produce a mixture of 200 kg to sell for 84 fils a kilo. How many pounds of each kind should he use?
- 3) A grocer wishes to combine 75-fils candy with 50-fils candy to make 40 kg of a mixture he can sell for 65 fils a kilo. How much of each kind should he use?
- 4) A ship leaves a harbor sailing at 28 mph. A plane leaves 6 hours later. At what rate must it fly to overtake the ship in an hour and 15 minutes?
- 5) A man flew to another city for a meeting at the rate of 260 mph. Later he returned by train at the rate of 60 mph. If his total traveling time was 4 hours, what was his flying time?
- 6) How many liters of cream containing 36% butterfat must be added to 100 liters of milk containing 3% butterfat to produce 4% milk?

- 7) A car travels from one town to another in 6 hours. On the return trip, the speed is increased by 10 mph and the trip takes 5 hours. Find the rate on the return trip. How far apart are the towns?
- 8) A chemist mixes an 11% acid solution with a 4% acid solution. How many milliliters of each solution should the chemist use to make a 700 ml solution that is 6% acid?
- 9) How many liters of water must be added to 5 liters of an 80% antifreeze solution to make 50% antifreeze solution?
- 10) Two water taps together can fill a tank in $9\frac{3}{8}$ hours. The tap of larger diameter takes 10 hours less than the smaller one to fill the tank separately. Find the time in which each tap can separately fill the tank.
- 11) Maria jogs to the country at a rate of 10 mph. She returns along the same route at 6 mph. If the total trip took 1 hour 36 minutes, how far did she jog?