

## MATH 3/4: ASSIGNMENT 10

MARCH 28, 2010

The speed is traditionally measured in miles per hour - mph (domestic unit), kilometers per hour (km/h), or meters per second (m/s). It can be also miles per minute, meters per minute, etc. Sometimes we need to convert from one type of units to the other. Keep in mind that  $1 \text{ km} = 1000 \text{ m}$ , and  $1 \text{ h} = 60 \text{ minutes} = 3600 \text{ seconds}$ ,  $1 \text{ mile (mi)} = 5280 \text{ ft} = 1760 \text{ yd}$ ,  $1 \text{ yard (yd)} = 3 \text{ ft}$

**The Average speed** is the ratio of the total distance covered to the total time of the journey.

### CLASSWORK

1. The car drives with the speed of 40 mph for one hour and then with the speed 70 mph for two hours. What is the average speed of the car?
2. Now Jessica is 12 years old, and her mother is 3 times older than her. In how many years her mother will be 2 times older than Jessica? How many years ago her mother was 4 times older than Jessica?
3. With all his money Sam can buy 8 pens. If a pen costs one dollar less, Sam would be able to buy 12 pens. How much does a pen cost now?

### HOMEWORK

1. (a) convert 30 mph to miles per minute.  
(b) convert 20 km/h to m/s  
(c) convert 20 yards per minute to feet per minute.  
(d) convert 12 feet per minute to yards per hour
2. Carl has to travel 420 miles. How much time does he save if he travels at 70 mph rather than 50 mph?
3. The boat travels with a speed 20 miles per hour and covers 90 miles. How many minutes earlier would this boat get to its destination if it could travel with a speed 25 miles per hour?
4. Now Mary is 8 years old, and her mother is 4 times older than her. In now many years her mother will be 3 times older than Mary? In how may years her mother will be 2 times older?
5. With all his money Bill can buy 10 notebooks. If a notebook were one dollar cheaper as it is now, he would be able to buy 12 notebooks. How much does the notebook cost?
6. The motorcycle drives on highway with the speed of 80 mph for 2 hours. After that it gets into traffic and drives for 1 hour with the speed of 30 mph. After the traffic clears up, he drives with the speed 90 mph for another 2 hours. What was the average speed of the motorcycle?
7. For 20 minutes Greg was driving on the highway with the speed 56 miles per hour. Then he drove through a small town with a speed 30 miles per hour for 10 minutes. What is the average speed of his journey?
- \*8. Jane drives with a certain speed from city A to city B. If Jane drives 10 mph faster, she will get to B in 3 hours, but if she drives 10 mph slower, she will get to B in 4 hours. What is Janes speed now? How far is B from A? How long will it take her to get from A to B?