Question #36781. Shakib, Ashraful and Mashrafee started a motorcycle race from Dhaka. Mashrafee reached Khulna 10 minutes after Shakib and Shakib reached 20 minutes before Ashraful. Speeds of Shakib and Ashraful were 60 km/hour and 20 km/hour respectively. What was the speed of Mashrafee in unit of meter/hour?

Solution.

x – the distance between Dhaka and Khulna.

Then time difference between the arrival of the Ashraful and Shakib:

$$\frac{x}{20} - \frac{x}{60} = \frac{1}{3}$$

$$\frac{2x}{60} = \frac{1}{3}$$

$$3x = 30, \qquad x = 10.$$

The distance between Dhaka and Khulna is 10 km. Shakib reached Khulna $\frac{10}{60} = \frac{1}{6}\,(\text{hour}) = 10\,(\text{minute})$.

Therefore, Mashrafee reached Khulna 20 minute. The speed of Mashrafee is $\frac{10}{20}\,(\text{km/minute}) = \frac{10}{\frac{1}{3}} = 30\,(\text{km/hour}) = 30 * 10^3 = 30000\,(\text{meter/hour})$.

Answer: 30000 (meter/hour).