Correct. Find the mean for each data set:

Leaving at 5 p.m.: $\dfrac{45 + 50 + 48 + 52 + 55}{5} = 50$

Leaving at 6 p.m.: $\dfrac{36 + 42 + 38 + 34 + 40}{5} = 38$

The difference between these averages is $50 - 38 = 12$, or 12 minutes.