

47 Let x represent the air speed of the plane and y the wind speed. Traveling with the wind, the average ground speed of the plane is $\frac{1680}{3} = 560$ mph, while its ground speed against the wind was $\frac{1680}{3.5} = 480$ mph. Thus,

$$x + y = 560$$

$$\underline{x - y = 480}$$

$$2x = 1040 \Rightarrow x = 520$$

Thus, $y = 560 - x = 40$. The air speed of the plane is 520 mph and the wind speed is 40 mph.