Name: Date: Period:

Vector Addition and Vector Components

1. An airplane is taking off at a 57° angle with a velocity of 45 m/s. How fast is it traveling across the ground, as well as into the air?

2. Sandy Squirrel travels 18 m east and 41 m north to get to her secret stash of Emerald Nuts. Chester Chipmunk decides to take a short cut and travel in a straight line to the location of the (not so) secret stash. How far did he travel and at what angle?

3. Consider the following vectors:

$$\vec{A} = 30\,\text{m} \text{ @ } 60^\circ \text{ N of E}$$
$$\vec{B} = 10\,\text{m, East}$$

Calculate $\vec{R} = \vec{A} + \vec{B}$.