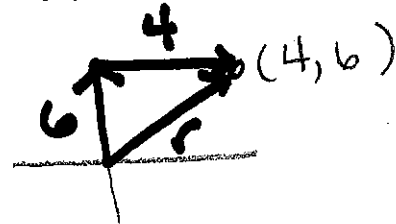
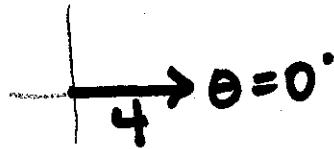
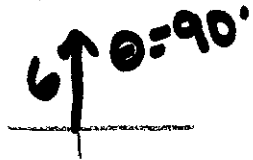


Warmup #10: Vector Applications

Suppose Michael Phelps swims at 6 mph across a stream that has a 4mph current. What speed is he heading?



$$\vec{r} = 6\langle \cos 90^\circ, \sin 90^\circ \rangle + 4\langle \cos 0^\circ, \sin 0^\circ \rangle$$

$$\langle 4, 6 \rangle$$

$$\|r\| = \sqrt{4^2 + 6^2}$$

$$= \sqrt{16 + 36}$$

$$= \sqrt{52}$$

$$\approx \boxed{7.21 \text{ mph}}$$