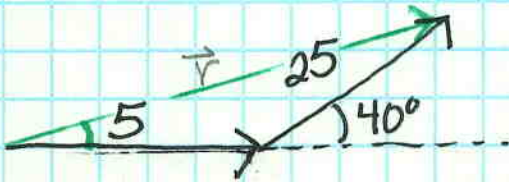


## 8-2-4 Word Problems - W/Riley

EX8: A QB runs at 5 m/s & throws a football at 25 m/s at  $40^\circ$  to the ground. Find the resultant vector's speed & direction.



$$\langle 5, 0 \rangle \quad \langle 25 \cos 40^\circ, 25 \sin 40^\circ \rangle$$

$$\langle 5, 0 \rangle + \langle 19.2, 16.1 \rangle$$

$$\vec{v}_1 + \vec{v}_2 = \langle 24.2, 16.1 \rangle = \vec{r}$$

$$|\vec{r}| = \sqrt{24.2^2 + 16.1^2} = \underline{29.1 \text{ m/s}} \quad \text{magnitude } \vec{r}$$

$$\theta = \tan^{-1} \frac{16.1}{24.2} \quad \underline{\theta = 33.6^\circ} \quad \text{direction } \vec{r}$$

① write 2(+) vectors in component form

② Evaluate, if necessary

③ add resultant