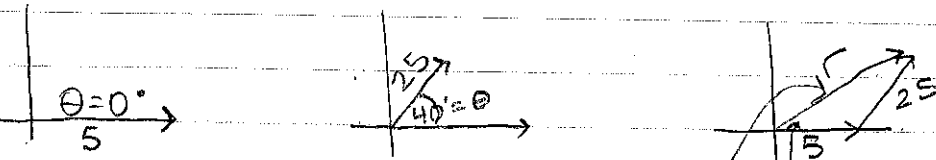


6.



$$r = 5 \langle \cos 0^\circ, \sin 0^\circ \rangle + 25 \langle \cos 40^\circ, \sin 40^\circ \rangle$$

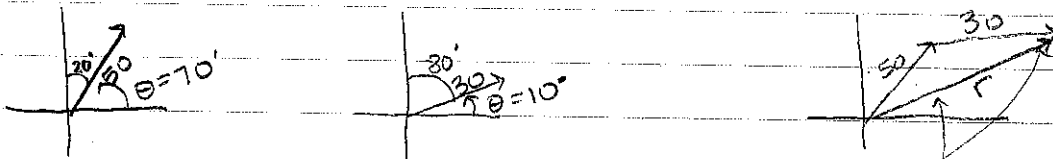
$$r = \langle 24.15, 16.07 \rangle \quad \cup$$

$$\|r\| = \sqrt{24.15^2 + 16.07^2} = \boxed{29.01 \text{ mps}}$$

$$\theta = \tan^{-1} \left(\frac{16.07}{24.15} \right) = \boxed{33.64} \quad \cup$$

It's to the ground so it doesn't matter if it's EN°.

7.



$$r = 50 \langle \cos 70^\circ, \sin 70^\circ \rangle + 30 \langle \cos 10^\circ, \sin 10^\circ \rangle$$

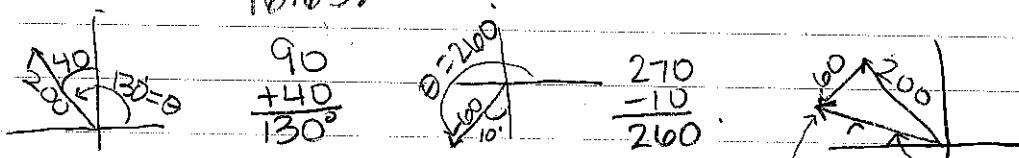
$$r = \langle 46.65, 52.19 \rangle \quad \cup$$

$$\|r\| = \sqrt{46.65^2 + 52.19^2} = \boxed{70 \text{ m}}$$

$$\theta = \tan^{-1} \left(\frac{52.19}{46.65} \right) = 48.21^\circ \quad \cup$$

$$\boxed{E 48.21^\circ N}$$

8.



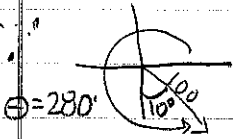
$$r = 200 \langle \cos 130^\circ, \sin 130^\circ \rangle + 60 \langle \cos 260^\circ, \sin 260^\circ \rangle$$

$$r = \langle -138.98, 94.12 \rangle \quad \cup$$

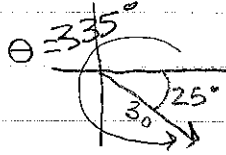
$$\|r\| = \sqrt{(-138.98)^2 + 94.12^2} = 167.85 \text{ mph}$$

$$\theta = \tan^{-1} \left(\frac{94.12}{-138.98} \right) = -34.11^\circ \rightarrow \boxed{W 34.11^\circ N}$$

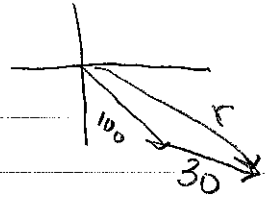
9.



$$\begin{array}{r} 270 \\ + 10 \\ \hline 280^\circ \end{array}$$



$$\begin{array}{r} 360 \\ - 25 \\ \hline 335^\circ \end{array}$$



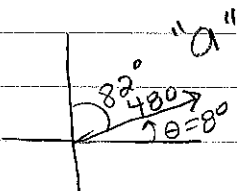
$$r = 100 \langle \cos 280^\circ, \sin 280^\circ \rangle + 30 \langle \cos 335^\circ, \sin 335^\circ \rangle$$

$$r = \langle 44.55, -111.16 \rangle \quad \Downarrow$$

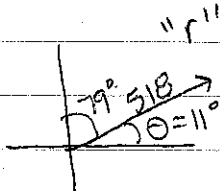
$$\|r\| = \sqrt{44.55^2 + (-111.16)^2} = \boxed{119.75 \text{ ft/min}}$$

$$\theta = \tan^{-1} \left(\frac{-111.16}{44.55} \right) = -68.16 \quad \boxed{E 68.16^\circ S} \quad \Downarrow$$

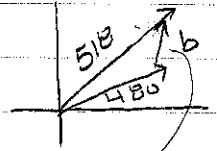
10.



$$\begin{array}{r} 90 \\ - 82 \\ \hline 8 \end{array}$$



$$\begin{array}{r} 90 \\ - 79 \\ \hline 11^\circ \end{array}$$



$$\vec{r} = \vec{a} + \vec{b}$$

$$\vec{r} - \vec{a} = \vec{b}$$

$$\vec{b} = \vec{r} - \vec{a}$$

$$518 \langle \cos 11^\circ, \sin 11^\circ \rangle$$

$$- 480 \langle \cos 82^\circ, \sin 82^\circ \rangle$$

$$\vec{b} = \langle 33.15, 32.04 \rangle \quad \Downarrow$$

$$\|b\| = \sqrt{33.15^2 + 32.04^2} = \boxed{46.10 \text{ mph}}$$

$$\theta = \tan^{-1} \left(\frac{32.04}{33.15} \right) = 44.02 \quad \boxed{E 44.02^\circ N} \quad \Downarrow$$