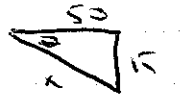
① $\vec{b} = 50\text{ m [E]}$ $\quad \vec{b} - \vec{g} = 225\text{ m [E]}$.
$\vec{g} = 175\text{ m [W]}$

② $\vec{c} = 42.5\text{ m [S]}$. $\quad \vec{c} - \vec{f} = 57.5\text{ m [S]}$.
$\vec{f} = 15\text{ m [N]}$.

③ $\vec{d} = 63.5\text{ m [W]}$. $\quad \vec{d} - \vec{g} = 111.5\text{ m [E]}$.
$\vec{g} = 175\text{ m [W]}$.

* ⑥ $\vec{b} = 50\text{ m [E]}$. $\quad \vec{b} - \vec{f} = 52.2\text{ m [16.7° S of E]}$.
$\vec{f} = 15\text{ m [N]}$.



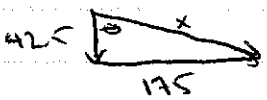
$x = \sqrt{50^2 + 15^2}$

$x = 52.2$

$\theta = \tan^{-1} \frac{15}{50}$

$\theta = 16.7°$

⑤ $\vec{c} = 42.5\text{ m [S]}$. $\quad \vec{c} - \vec{g} = 183.1\text{ m [13.7° S of E]}$.
$\vec{g} = 175\text{ m [W]}$



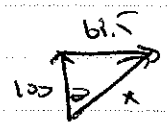
$x = \sqrt{175^2 + 42.5^2}$

$x = 183.09$

$\theta = \tan^{-1} \frac{42.5}{175}$

$\theta = 76.3°$

* ④ $\vec{a} = 100\text{ m [N]}$. $\vec{a} - \vec{d} = 118.5\text{ m [32.4° E of N]}$.
$\vec{d} = 63.5\text{ m [W]}$.



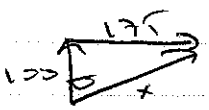
$x = \sqrt{100^2 + 63.5^2}$

$x = 118.5$

$\theta = \tan^{-1} \frac{63.5}{100}$

$\theta = 32.4$

⑦ $\vec{a} = 100\text{ m [N]}$. $\vec{a} - \vec{f} = 201.6\text{ m [30° N of E]}$.
$\vec{f} = 175\text{ m [W]}$.



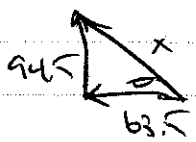
$x = \sqrt{175^2 + 100^2}$

$x = 201.6$

$\theta = \tan^{-1} \frac{175}{100}$

$\theta = 60.3$

⑧ $\vec{d} = 63.5\text{ m [W]}$. $\vec{d} - \vec{e} = 113.9\text{ m [33.9° W of N]}$.
$\vec{e} = 94.5\text{ m [S]}$.



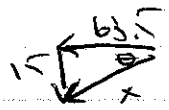
$x = \sqrt{94.5^2 + 63.5^2}$

$x = 113.9$

$\theta = \tan^{-1} \frac{94.5}{63.5}$

$\theta = 56.1$

(9) $\vec{d} = 63.5\text{ m}[\text{W}]$. $\quad \vec{d} - \vec{f} = 65.2\text{ m}\ [13.3^\circ\ \text{S of W}]$.
$\vec{f} = 15\text{ m}[\text{N}]$.



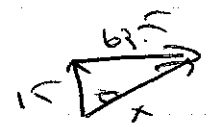
$x = \sqrt{63.5^2 + 15^2}$

$x = 65.2$

$\theta = \tan^{-1}\frac{15}{63.5}$

$\theta = 13.3^\circ$

(10) $\vec{f} = 15\text{ m}[\text{N}]$. $\quad \vec{f} - \vec{d} = 65.2\text{ m}\ [13.3^\circ\ \text{N of E}]$.
$\vec{d} = 63.5\text{ m}[\text{W}]$.



$x = \sqrt{63.5^2 + 15^2}$

$x = 65.2$

$\theta = \tan^{-1}\frac{63.5}{15}$

$\theta = 76.7^\circ$