

$$\textcircled{1} \quad \vec{b} + \vec{g} = (+50 \text{ m}) + (-175 \text{ m}) = -125 \text{ m} = 125 \text{ m [W]}$$

$$\textcircled{2} \quad \vec{c} + \vec{f} = (-425 \text{ m}) + (+175 \text{ m}) = -250 \text{ m} = 250 \text{ m [S]}$$

$$\textcircled{3} \quad \vec{d} + \vec{g} = (-63.5 \text{ m}) + (-175 \text{ m}) = -238.5 \text{ m} = 238.5 \text{ m [W]}$$

$$\textcircled{4} \quad \begin{array}{l} \begin{array}{c} \text{63.5} \\ \swarrow \quad \uparrow \\ x \quad \theta \quad 100 \end{array} \quad x^2 = 100^2 + 63.5^2 \quad \theta = \tan^{-1} \left( \frac{63.5}{100} \right) \\ x = 118.5 \text{ m} \quad \theta = 32^\circ \end{array}$$

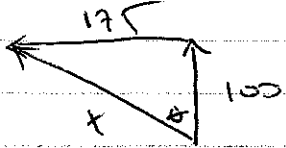
$$\vec{a} + \vec{d} = 118.5 \text{ m [} 32^\circ \text{ W of N]}$$

$$\textcircled{5} \quad \begin{array}{l} \begin{array}{c} x \quad \theta \\ \swarrow \quad \downarrow \\ 175 \quad 425 \end{array} \quad x^2 = 425^2 + 175^2 \quad \theta = \tan^{-1} \left( \frac{175}{425} \right) \\ x = 180.1 \text{ m} \quad \theta = 76^\circ \end{array}$$

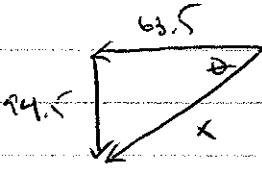
$$\vec{c} + \vec{g} = 180.1 \text{ m [} 76^\circ \text{ W of S]}$$

$$\textcircled{6} \quad \begin{array}{l} \begin{array}{c} x \quad \theta \\ \swarrow \quad \uparrow \\ 50 \quad 15 \end{array} \quad x^2 = 50^2 + 15^2 \quad \theta = \tan^{-1} \left( \frac{15}{50} \right) \\ x = 52.2 \text{ m} \quad \theta = 16.7^\circ \end{array}$$

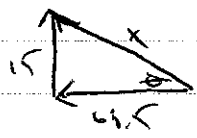
$$\vec{b} + \vec{f} = 52.2 \text{ m [} 16.7^\circ \text{ N of E]}$$

⑦   $x^2 = 100^2 + 175^2$   $\theta = \tan^{-1}\left(\frac{175}{100}\right)$   
 $x = 201.6 \text{ m}$   $\theta = 60^\circ$

$\vec{a} + \vec{g} = 201.6 \text{ m} [60^\circ \text{ W of N}]$

⑧   $x^2 = 63.5^2 + 94.5^2$   $\theta = \tan^{-1}\left(\frac{94.5}{63.5}\right)$   
 $x = 113.9 \text{ m}$   $\theta = 56^\circ$

$\vec{d} + \vec{e} = 113.9 \text{ m} [56^\circ \text{ S of W}]$

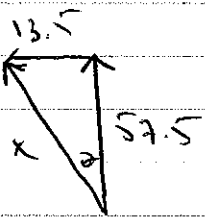
⑨   $x^2 = 15^2 + 63.5^2$   $\theta = \tan^{-1}\left(\frac{15}{63.5}\right)$   
 $x = 65.2 \text{ m}$   $\theta = 13^\circ$

$\vec{d} + \vec{f} = 65.2 \text{ m} [13^\circ \text{ N of W}]$

⑩  $\vec{a} + \vec{b} + \vec{c} + \vec{d} = (\vec{a} + \vec{c}) + (\vec{b} + \vec{d})$

$\vec{a} + \vec{c} = (+100 \text{ m}) + (-42.5 \text{ m}) = +57.5 \text{ m} = 57.5 \text{ m} [\text{N}]$

$\vec{b} + \vec{d} = (+50 \text{ m}) + (-63.5 \text{ m}) = -13.5 \text{ m} = 13.5 \text{ m} [\text{W}]$

  $x^2 = 57.5^2 + 13.5^2$   $\theta = \tan^{-1}\left(\frac{13.5}{57.5}\right) = 13^\circ$   
 $x = 59.1 \text{ m}$   $\vec{a} + \vec{b} + \vec{c} + \vec{d} = 59.1 \text{ m} [13^\circ \text{ W of N}]$