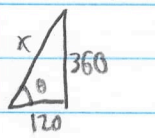
Alex Yeoh

60. $\frac{10.5-2.5}{42-0} = \frac{8}{42} = 0.190 \frac{m}{s} \approx 0.208 \frac{m}{s}$

2a. $(4+3+3)120m = 10 \cdot 120m = 1200m$

b. 

$x = \sqrt{120^2+360^2} = 379m$

$\theta = \tan^{-1}\left(\frac{360}{120}\right) = 71.6°$ N of E

4. $R = \sqrt{A^2+B^2} = \sqrt{18^2+25^2} = 30.8m$

$\tan\theta = \frac{B}{A}$

$\theta = \tan^{-1}\left(\frac{B}{A}\right) = \tan^{-1}\left(\frac{25}{18}\right) = 54.2°$ N of W or $90-54.2 = 35.8°$ W of N

5. A: $\sin(20) = \frac{x}{12}$ $\cos(20) = \frac{y}{12}$

$x = 4.10$ $y = 11.28$

B: $\sin(40) = \frac{y}{20}$ $\cos(40) = \frac{x}{20}$

$y = 12.86$ $x = 15.32$

$x = -4.10 - 15.32 = -19.43m$

$y = 11.28 - 12.86 = -1.58m$

$R = \sqrt{(-19.42)^2+(-1.58)^2} = 19.5m$

$\theta = \tan^{-1}\left(\frac{-1.579}{-19.43}\right) = 4.65°$ S of W

22. A: $\sin(7.5) = \frac{y}{4.70}$ $\cos(7.5) = \frac{x}{4.70}$

$y = 0.613$ $x = 4.66$

B: $\sin(16) = \frac{x}{2.48}$ $\cos(16) = \frac{y}{2.48}$

$x = 0.684$ $y = 2.38$

C: $\sin(19) = \frac{y}{3.02}$ $\cos(19) = \frac{x}{3.02}$

$y = 0.983$ $x = 2.86$

$x = 4.66 - 0.684 - 2.86 = 1.12m$

$y = -0.613 + 2.38 + 0.983 = 2.75m$

$D = \sqrt{1.12^2+2.75^2} = 2.97m$

$\theta = \tan^{-1}\left(\frac{1.12}{2.75}\right) = 22.1°$ W of S