

5. The textbook's approach to this sort of problem is through the use of Eq. 3-6, and is illustrated in Sample Problem 3-3. However, most modern graphical calculators can produce the results quite efficiently using rectangular \leftrightarrow polar "shortcuts."

(a) $\sqrt{(-25)^2 + 40^2} = 47.2 \text{ m}$

- (b) Recalling that $\tan(\theta) = \tan(\theta + 180^\circ)$, we note that the two possibilities for $\tan^{-1}(40/-25)$ are -58° and 122° . Noting that the vector is in the third quadrant (by the signs of its x and y components) we see that 122° is the correct answer. The graphical calculator "shortcuts" mentioned above are designed to correctly choose the right possibility.