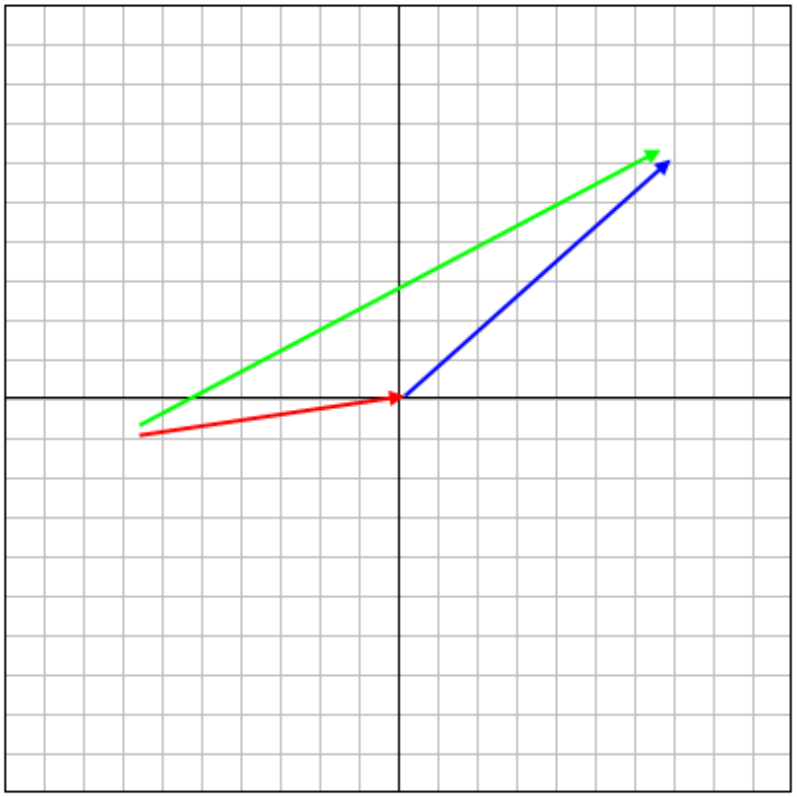
2. –/3 points Notes Question: PAD 3.2.NP.04.

Draw the Vector **A** of length 7.07 at an angle of 8.13°, the Vector **B** of length 9.22 at an angle of 40.6°, and Vector **C** that is the sum of the two vectors. Angles are measured counter-clockwise from the positive horizontal axis.



Find the length and direction of Vector **C** in degrees:

Length:

Degrees:

	x	y
$\vec{A}$	7	1
+ $\vec{B}$	7	6
$\vec{C}$	14	7

$\tan\theta = \frac{7}{14}$

$c^2 = (14^2) + 7^2$

6. –/6 points Notes

For the vectors given in Fig. 3-32 ($|A|$ = 63.0 and θ = 59.5°), determine the following.

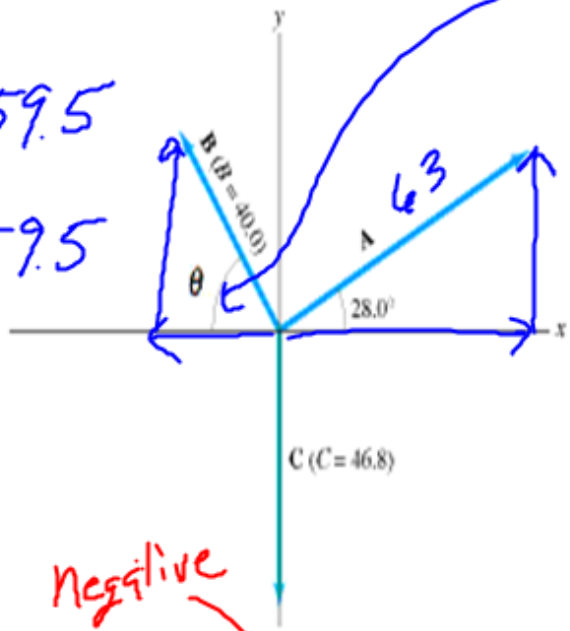


Figure 3-32

$B_y = 40 \sin 59.5$

$B_x = -40 \cos 59.5$

$A_y = 63 \sin 28 =$

$A_x = 63 \cos 28 =$

$\vec{A} - \vec{B} + \vec{C}$

$y \quad 63 \sin 28 - 40 \sin 59.5 + (-46.8)$

-51.6884

negative

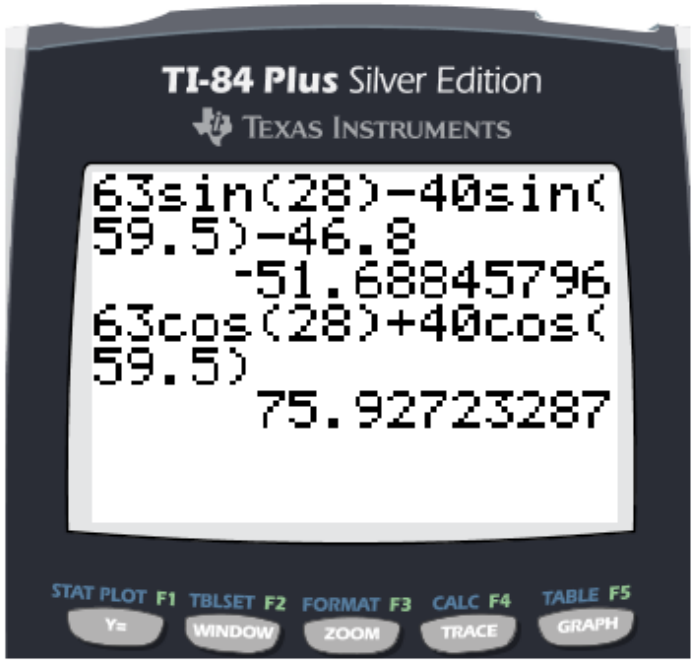
$x \quad 63 \cos 28 - (-40 \cos 59.5) + 0$

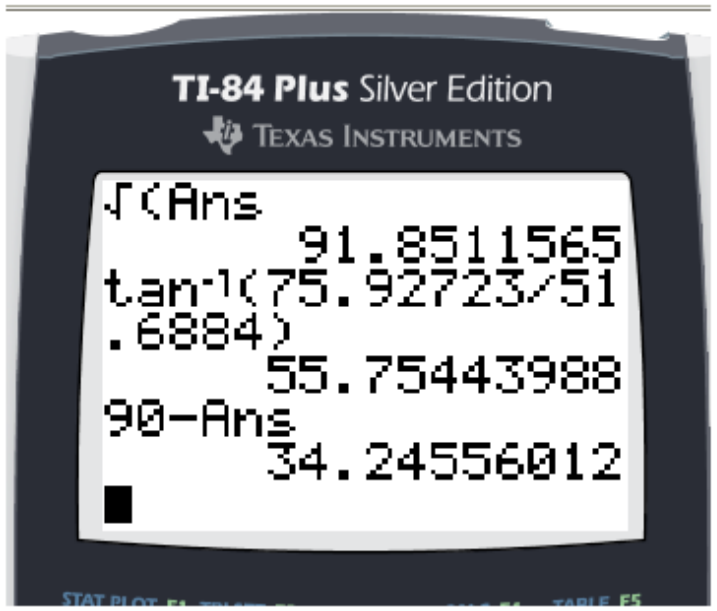
75.92723

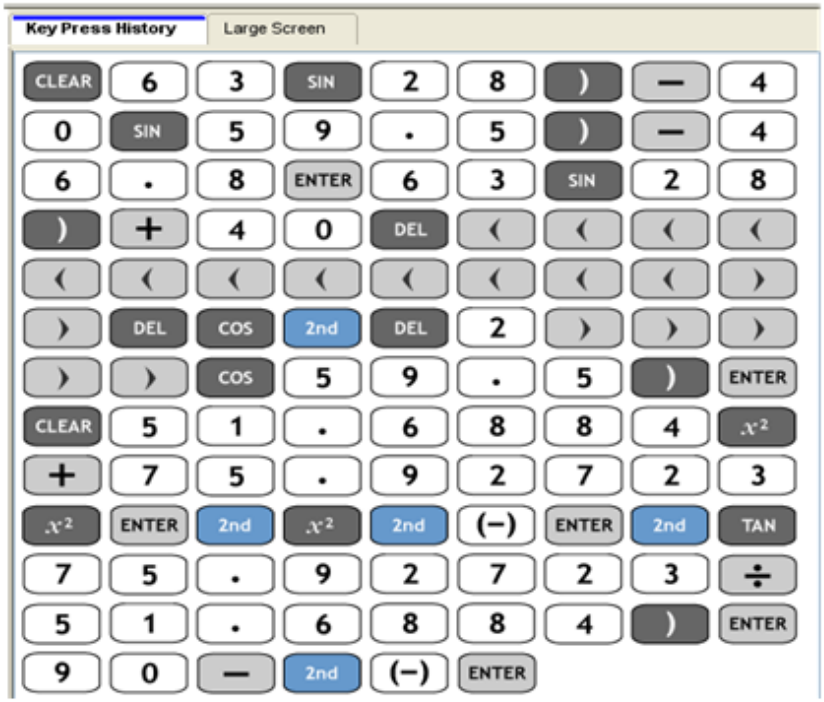
$d^2 = (y)^2 + (x)^2$

$\theta = \text{Tan} \frac{x}{y}$

$90 - \theta =$


TI-84 Plus Silver Edition
Texas Instruments
63sin(28)-40sin(
59.5)-46.8
-51.68845796
63cos(28)+40cos(
59.5)
75.92723287
STAT PLOT F1 TBLSET F2 FORMAT F3 CALC F4 TABLE F5
Y=
WINDOW
ZOOM
TRACE
GRAPH


TI-84 Plus Silver Edition
Texas Instruments
√(Ans
91.8511565
tan⁻¹(75.92723/51
.6884)
55.75443988
90-Ans
34.24556012


Key Press History
Large Screen
CLEAR 6 3 SIN 2 8) − 4
0 SIN 5 9 . 5) − 4
6 . 8 ENTER 6 3 SIN 2 8
) + 4 0 DEL ((((
(((((((( )
) DEL COS 2nd DEL 2)))
)) COS 5 9 . 5) ENTER
CLEAR 5 1 . 6 8 8 4 x²
+ 7 5 . 9 2 7 2 3
x² ENTER 2nd x² 2nd (−) ENTER 2nd TAN
7 5 . 9 2 7 2 3 ÷
5 1 . 6 8 8 4) ENTER
9 0 − 2nd (−) ENTER

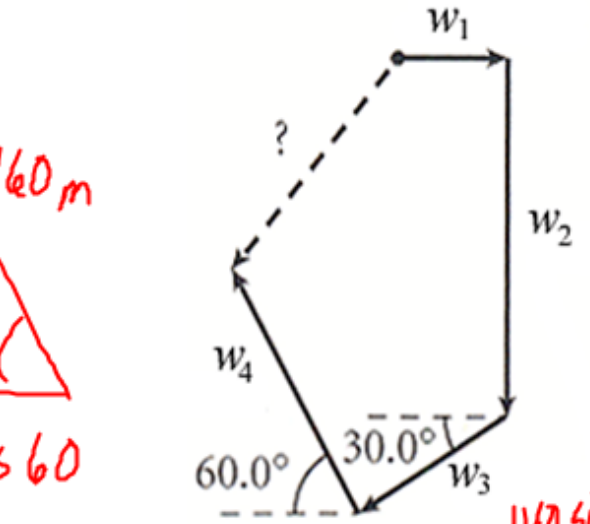
12. –/2 points Notes

A person walks the path shown below. The total trip consists of four straight-line paths.

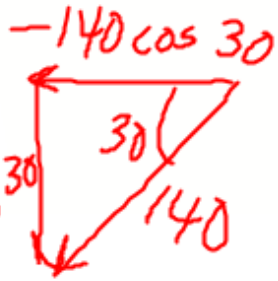
Path 1 is 90.0 m due east.
Path 2 is 210.0 m due south.
Path 3 is 140.0 m 30.0° south of west.
Path 4 is 160.0 m 60.0° north of west.

At the end of the walk, what is the person's resultant displacement?

[ ] m at [d] ° south of west.



[Figure not drawn to scale]

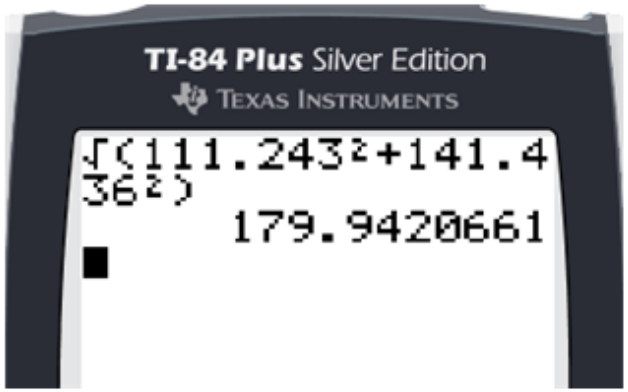


	x	y
$\vec{w}_1$	90	
$\vec{w}_2$		−210
$\vec{w}_3$	−140 cos 30	−140 sin 30
$+\vec{w}_4$	−160 cos 60	+160 sin 60
	−111.243	−141.436

$d^2 = (111.243)^2 + (141.436)^2$

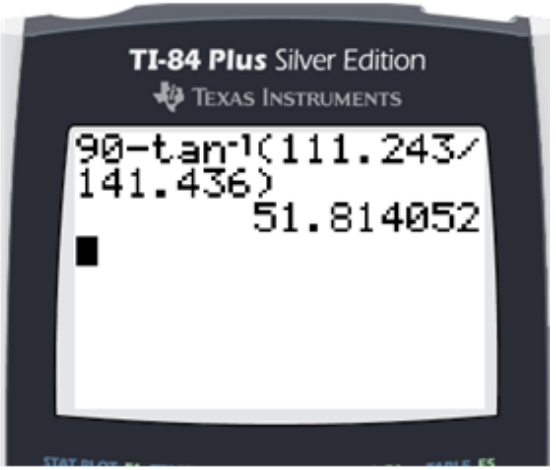
cont ↓

$d = 179.94 = 180\,m$



$$\alpha = 90 - \mathrm{Tan}^{-1}\left(\frac{111.243}{141.436}\right)$$

$$\alpha = 51.8^{\circ}$$



At the end of the walk, what is the person's resultant displacement?

180 ✔ m at 51.8 ✔ ° south of west.

Yea!