SOLVING FOR A RESULTANT VECTOR

Name:
Per:

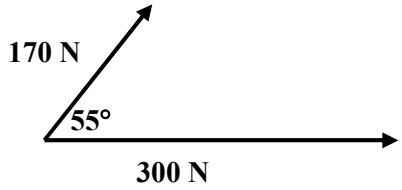
REMINDERS:

A vector represents a force that has both _____ and _____
(length) *(angle)*

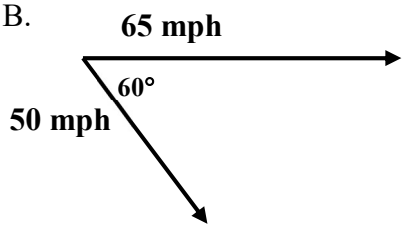
Law of Cosines: **Law of Sines:**

1st Form a parallelogram to find the resultant vector ***v***.
2nd Sketch a separate triangle diagram/graph with the tail (initial point) placed at the origin.
3rd Solve for the magnitude and direction of ***v***. ***Carefully show all steps and label measurements.***

A.



B.



CHECK ANSWERS: 19.3 99.87 334.31 421.19

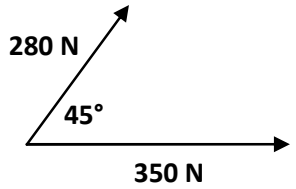
Review: Ch.9 Vectors
CLEARLY SHOW ALL WORK!

1. **Find the component form of $\overrightarrow{DC}$.**
   C(2, -3) D(0, 9)
2. **Find the magnitude of the given vector.**
   $\overrightarrow{CD} = \langle -2,12 \rangle$
3. **Find the component form of $\overrightarrow{EF}$.**
   E(2, -1, 4) F(6, -2, 1)
4. **Find the magnitude of the given vector.**
   $\overrightarrow{CD} = \langle 4,-1,-3 \rangle$
5. **Find the component form of $\overrightarrow{HG}$.**
   G(-4, -3, 0) H(2, -1, 7)
6. **Find the magnitude of the given vector.**
   $\overrightarrow{GH} = \langle 6,2,7 \rangle$
7. **Find the dot product, $\vec{v} \bullet \vec{w}$, if**
   $\vec{v} = \langle 5,-1 \rangle$ $\vec{w} = \langle -2,6 \rangle$
8. **Find the cross product, $\vec{u}$ x $\vec{v}$, if**
   $\vec{u} = \langle 7,2,1 \rangle$ $\vec{v} = \langle 2,5,3 \rangle$
9. **Write as a sum of unit vectors:**
   $\langle -3,2,-1 \rangle$

CHECK #14-18: -2 2.65 4.24 $\langle 4,12,16 \rangle$
30.25 48.49 349.2 188.7 $\sqrt{58}$ 246.8

CHECK
ANSWERS#1-13:
$2\sqrt{37}$ $\sqrt{26}$ $\sqrt{89}$ -16 0
19.9 582.66 $-3i + 2j - k$
$\langle 1,-19,31 \rangle$ $\langle 4,-1,-3 \rangle$ $\langle -6,-2,-7 \rangle$
$\langle 11,15,-3 \rangle$ $\langle 13,-37,30 \rangle$ $\langle 2,-12 \rangle$

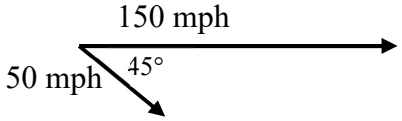
10. **Find the component form of $\vec{u}$ if $\vec{v} = \langle -1,7,-4 \rangle$ and $\vec{w} = \langle 4,-1,5 \rangle$ and $\vec{u} = 2\mathbf{w} - 5\mathbf{v}$**
11. **Find the dot product, $\vec{v} \bullet \vec{w}$, if**
    $\vec{v} = \langle 4,1,-2 \rangle$ $\vec{w} = \langle 3,-4,4 \rangle$
12. **Find the cross product, $\vec{u}$ x $\vec{v}$, if**
    $\vec{u} = \langle -3,2,-1 \rangle$ $\vec{v} = \langle 6,-3,7 \rangle$
13. **Form a parallelogram to find the resultant vector $\vec{v}$, then solve for the magnitude and direction of $\vec{v}$.**



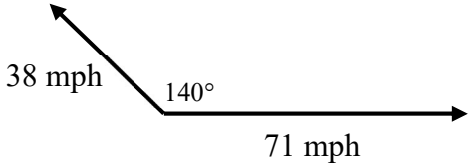
14. Find $\boldsymbol{v} \cdot \boldsymbol{w}$ and $\boldsymbol{v}$ x $\boldsymbol{w}$ if $\boldsymbol{v}$ = i – 3j + 2k and $\boldsymbol{w}$ = 5i + j – 2k

15. Given that $\vec{v}$ has a magnitude of 5 ft/sec and a direction of 32°, find the magnitude of its vertical and horizontal components. Sketch a diagram.

16. Calculate the magnitude and direction of the resultant vector. Sketch a parallelogram to find the resultant vector.



17. Calculate the magnitude and direction of the resultant vector. Sketch a parallelogram to find the resultant vector.



18. Sketch a diagram, then find the magnitude and direction of vector $\boldsymbol{u} = -3i - 7j$