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## VECTORS

Determine whether the following vectors are equivalent. Show ALL of your work for credit.

1) $\overrightarrow{R S}=\overrightarrow{X Y}$ given that $R=(-3,7) S=(0,4) X=(-2,11) Y=(1,14)$
2) $\overrightarrow{R S}=\overrightarrow{X Y}$ given that $R=(2,0) S=(-6,8) X=(4,4) Y=(12,-4)$
3) $\overrightarrow{R S}=\overrightarrow{X Y}$ given that $R=(9,-5) S=(-1,-1) X=(10,0) Y=(0,4)$
4) $\overrightarrow{R S}=\overrightarrow{X Y}$ given that $R=(-11,17) S=(9,6) X=(4,3) Y=(24,-8)$
5) $\overrightarrow{R S}=\overrightarrow{X Y}$ given that $R=(3,-7) S=(8,12) X=(8,12) Y=(3,-7)$

Draw each of the vectors on the grid below. Label each vector with the letters used.
6) $A=(3,4) B=(-1,2)$
7) $C=(-9,-7) D=(-4,-6)$
8) $E=(10,-3) F=(5,2)$
9) $G=(2,7) H=(2,3)$

10) Find the direction (component form) and magnitude for problems 8 and 9.

Find the direction and magnitude for each of the following.
11)

12)

13)

14)


Use the given information to find the following resultant vectors algebraically.
$\vec{v}=\langle 3,2\rangle \vec{u}=\langle-6,2\rangle \quad R=(-2,11) S=(4,-5) \quad T=(10,3)$
15) $\vec{u}+\vec{v}$
16) $\vec{u}-\vec{v}$
17) 17. $\vec{u}+\overrightarrow{R S}$
18) $\overrightarrow{R S}-\overrightarrow{S T}$
19) $2 \vec{u}+3 \vec{v}$
20) $3 \overrightarrow{S T}-\overrightarrow{R T}$

Find the resultant vector geometrically.

21) $\mathbf{u}+\mathbf{v}$
22) $\mathbf{u}-\mathbf{v}$
23) $3 v$
24) $2 \mathbf{u}+w$
25) $2 \mathbf{u}-\mathbf{w}$
26) $w+2 x$

