Pre- Cal AB Name_____
Sections 10.5-10.6A Review

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1) Find the **magnitude** of $\overrightarrow{PQ}$

a) $P=(-7,0)\quad Q=(-4,-5)$

b) $P=(1,5)\quad Q=(7,11)$

2) Find the **equivalent vector** to the vector $\overrightarrow{PQ}$

a) $P=(-4,-8)\quad Q=(-10,2)$

b) $P=\left(\frac{4}{5},-2\right)\quad Q=\left(\frac{17}{5},\frac{-12}{5}\right)$

3) Find $2u - 3v$. Leave answers in the vector form.

a) $u=\langle 1,5\rangle\quad v=\langle 7,11\rangle$

b) $u=2\langle -2,5\rangle\quad v=\frac{1}{4}\langle -8,12\rangle$

c) $u=i-2j\qquad v=-4i+j$

4) Find the **magnitude** of $u+v$

$u=\langle 3,1\rangle\quad v=\langle -6,-2\rangle$

$u+v=$

$\|u+v\|=$

5) Find the **magnitude** of $u-v$

$u=\langle -8,4\rangle\quad v=\langle -7,3\rangle$

$u-v=$

$\|u-v\|=$

6) Find the **component form** ($xi+yj$) of the vector whose magnitude and direction angle are given.

a) $\|v\|=20\qquad \theta=125^\circ$

b) $\|v\|=8\qquad \theta=60^\circ$ (no decimals accepted)

7) Find the **magnitude** $\|v\|$ and **direction angle** θ

a) $v=\langle 4,5\rangle$

b) $v=4i-8j$

c) $v=-15i-10j$

8) Find the **unit vector** that has the same direction $\boxed{\frac{u}{\|u\|}}$

a) $\langle 2,7 \rangle$ b) $-4i-8j$

9) Find the **dot product** $u \cdot v$

a) $u=\langle 3,-5 \rangle \quad v=\langle -4,3 \rangle$ b) $u=5i+2j \quad v=-6i-3j$

10) Find the **angle** between the vectors. Leave answer in degree mode. $\boxed{\theta = Cos^{-1}\left(\frac{u \cdot v}{\|u\|\|v\|}\right)}$

a) $u=2i-3j \quad v=-i$ b) $u=\sqrt{3}i+\sqrt{3}j \quad v=i-j$ c) $u=\langle -2,6 \rangle \quad v=\langle 4,-1 \rangle$

11) Determine which pair of vectors are **parallel, orthogonal, or neither.** Show all work to earn full credit.

a) $u=\langle 15,12 \rangle \quad v=\langle 5,4 \rangle$ b) $u=\langle 4,2 \rangle \quad v=\langle 3,6 \rangle$

c) $u=4i+8j \quad v=-6i+3j$

12) Find k so that the vectors are orthogonal for

$u=-3i+j \quad v=2ki-4j$