Name: _____ Date: 3/16/15
Pre-Calculus Ms. Wilson

Practice with Vectors – Basic Operations

For questions 1-4, prove that $\overrightarrow{RS}$ and $\overrightarrow{PQ}$ are equivalent by showing that they represent the same vector.

1.)$R = (-4, 7), S = (-1, 5),$
$P = (0, 0), and\ Q = (3, -2)$

3.)$R = (2, 1), S = (0, -1),$
$P = (1, 4), and\ Q = (-1, 2)$

2.)$R = (7, -3), S = (4, -5),$
$P = (0, 0), and\ Q = (-3, -2)$

4.)$R = (-2, -1), S = (2, 4),$
$P = (-3, -1), and\ Q = (1, 4)$

For questions 5-12, let $P = (-2, 2), Q = (3, 4), R = (-2, 5) and\ S = (2, -8)$. Find the component form and magnitude of each vector.

5.) $\overrightarrow{PQ}$

9.) $2\overrightarrow{QS}$

6.) $\overrightarrow{RS}$

10.) $(\sqrt{2})\overrightarrow{PR}$

7.) $\overrightarrow{QR}$

11.) $3\overrightarrow{QR} + \overrightarrow{PS}$

8.) $\overrightarrow{PS}$

12.) $\overrightarrow{PS} - 3\overrightarrow{PQ}$

For questions 13-20, let $\boldsymbol{u} = \langle -1,3 \rangle, \boldsymbol{v} = \langle 2,4 \rangle, and\ \boldsymbol{w} = \langle 2,-5 \rangle$. Find the component form of each vector.

13.) $\boldsymbol{u} + \boldsymbol{v}$

14.) $\boldsymbol{u} + (-1)\boldsymbol{v}$

15.) $\boldsymbol{u} - \boldsymbol{w}$

16.) $3\boldsymbol{v}$

17.) $2\boldsymbol{u} + 3\boldsymbol{w}$

18.) $2\boldsymbol{u} - 4\boldsymbol{v}$

19.) $-2\boldsymbol{u} - 3\boldsymbol{v}$

20.) $-\boldsymbol{u} - \boldsymbol{v}$