Accel. Precalculus Name_____

Vector Review

Date_____ Period____

Find the following information for each vector, if not provided in the question: Component form, magnitude and direction angle.

1) $\mathbf{k} = \langle -2\sqrt{6}, 5 \rangle$

2) $\overrightarrow{RS}$ where $R = (7, -3)$ $S = (8, 6)$

3) $16\mathbf{i} + 30\mathbf{j}$

4) $\mathbf{v} = \langle 19, -43 \rangle$

5) $\overrightarrow{RS}$ where $R = (2, 9)$ $S = (-2, 10)$

Find the magnitude and direction angle of the resultant of each pair of vectors.

6) $\mathbf{m} = \langle 9, -12 \rangle$ $\mathbf{n} = \langle 1, 8 \rangle$

7) $\mathbf{a} = \langle -15, 6 \rangle$ $\mathbf{b} = \langle 13, -15 \rangle$

8) $\mathbf{a} = \langle 5, -12 \rangle$ $\mathbf{b} = \langle -17, 17 \rangle$

9) $\mathbf{t} = \langle 11, 3 \rangle$ $\mathbf{u} = \langle 8, -15 \rangle$

Find the component form of the resultant vector.

10) $\mathbf{u} = \langle -\sqrt{969}, 16 \rangle$
Find: $4\mathbf{u}$

11) $\mathbf{u} = \langle 8, -8 \rangle$
$\mathbf{g} = \langle -11, 10 \rangle$
Find: $\mathbf{u} + \mathbf{g}$

12) Given: $A = (9, -1)$ $B = (10, 6)$
Find: $\sqrt{3} \cdot \overrightarrow{AB}$

13) Given: $P = (3, -5)$ $Q = (2, -2)$
$R = (-4, -8)$ $S = (0, 10)$
Find: $-\overrightarrow{PQ} + \overrightarrow{RS}$

14) $|\mathbf{u}| = 8, 315°$
Unit vector in the direction of $\mathbf{u}$

15) $|\mathbf{a}| = 23, 344°$
Unit vector in the direction of $\mathbf{a}$

Find the dot product of the given vectors.

16) $\mathbf{u} = \langle 5, 5 \rangle$
$\mathbf{v} = \langle -1, 4 \rangle$

17) $\mathbf{u} = \langle -2, 1 \rangle$
$\mathbf{v} = \langle -6, -5 \rangle$

State if the two vectors are parallel, orthogonal, or neither.

18) $\mathbf{u} = \langle -12, -8 \rangle$
$\mathbf{v} = \langle -6, -4 \rangle$

19) $\mathbf{u} = \left\langle -\frac{8}{3}, 4 \right\rangle$
$\mathbf{v} = \langle -6, -4 \rangle$

Find the measure of the angle between the two vectors.

20) $\mathbf{u} = \langle 5, -8 \rangle$
$\mathbf{v} = \langle -4, 2 \rangle$

21) $\mathbf{u} = \langle 8, 3 \rangle$
$\mathbf{v} = \langle 4, 0 \rangle$

Answers to Vector Review

1) 7
134.42°

2) $\langle 1, 9 \rangle$
$\sqrt{82} \approx 9.055$
83.66°

3) $\langle 16, 30 \rangle$
34
61.93°

4) $\sqrt{2210} \approx 47.011$
293.84°

5) $\langle -4, 1 \rangle$
$\sqrt{17} \approx 4.123$
165.96°

6) 10.77; 338.2°

7) 9.22; 257.47°

8) 13; 157.38°

9) 22.47; 327.72°

10) $\langle -4\sqrt{969}, 64 \rangle$

11) $\langle -3, 2 \rangle$

12) $\langle \sqrt{3}, 7\sqrt{3} \rangle$

13) $\langle 5, 15 \rangle$

14) $\langle 0.71, -0.71 \rangle$

15) $\langle 0.96, -0.28 \rangle$

16) 15

17) 7

18) *Parallel*

19) *Orthogonal*

20) 148.57°

21) 20.56°