 Name_____

Three Dimensional Vector Operations

Date_____ Period____

Find the component form of the resultant vector.

1) $\vec{f} = \langle -6, -8, 8 \rangle$
$\vec{g} = \langle 8, -5, 3 \rangle$
Find: $\vec{f} + \vec{g}$

2) $\vec{u} = \langle 0, 9, -4 \rangle$
$\vec{g} = \langle 9, 7, -7 \rangle$
Find: $\vec{u} - \vec{g}$

3) Given: $A = (-6, -3, -5)$ $B = (-4, -8, 5)$
$C = (-2, 3, -4)$ $D = (-6, 5, 0)$
Find: $-\overrightarrow{AB} - \overrightarrow{CD}$

4) Given: $T = (-2, 4, -1)$ $X = (3, -2, -5)$
$Y = (7, 5, -1)$ $Z = (7, 3, -4)$
Find: $\overrightarrow{TX} + \overrightarrow{YZ}$

5) $\vec{a} = \langle 1, -8, 5 \rangle$
$\vec{g} = \langle -6, 7, -7 \rangle$
Find: $-\vec{a} - 4\vec{g}$

6) $\vec{u} = \langle -2, 5, -6 \rangle$
$\vec{g} = \langle -2, -3, 8 \rangle$
Find: $4\vec{u} + 10\vec{g}$

7) Given: $A = (-6, -6, -4)$ $B = (4, -8, 7)$
$C = (8, 9, 5)$ $D = (7, 2, -9)$
Find: $5\overrightarrow{AB} + 10\overrightarrow{CD}$

8) Given: $P = (0, 9, 7)$ $Q = (-9, -4, 1)$
$R = (9, -9, -4)$ $S = (-8, 2, 0)$
Find: $6\overrightarrow{PQ} - 5\overrightarrow{RS}$

Find the magnitude of the resultant vector.

9) $\vec{f} = \langle -9, 1, -7 \rangle$
$\vec{v} = \langle 4, -1, 0 \rangle$
Find: $\vec{f} + \vec{v}$

10) $\vec{f} = \langle 5, 1, 0 \rangle$
$\vec{v} = \langle 3, 7, 7 \rangle$
Find: $-\vec{f} + \vec{v}$

11) Given: $A = (-2, 3, 3)$ $B = (4, -9, 0)$
$C = (5, -4, 2)$ $D = (8, -5, 1)$
Find: $\overrightarrow{AB} - \overrightarrow{CD}$

12) Given: $P = (-7, 7, -7)$ $Q = (1, -8, -9)$
$R = (-7, -3, 5)$ $S = (-3, 0, 0)$
Find: $-\overrightarrow{PQ} - \overrightarrow{RS}$

13) $\vec{u} = \langle -6, -7, 1 \rangle$
$\vec{g} = \langle -2, 2, -8 \rangle$
Find: $-3\vec{u} - 10\vec{g}$

14) $\vec{u} = \langle -4, -4, 9 \rangle$
$\vec{g} = \langle -8, 4, 4 \rangle$
Find: $2\vec{u} + 5\vec{g}$

15) Given: $A = (8, -3, 9)$ $B = (-5, 1, 6)$
$C = (-4, -9, 5)$ $D = (-8, 8, -2)$
Find: $-\overrightarrow{AB} + \overrightarrow{CD}$

16) Given: $T = (-3, -7, -6)$ $X = (3, 6, -1)$
$Y = (-9, -4, -9)$ $Z = (5, 1, -2)$
Find: $6\overrightarrow{TX} + 7\overrightarrow{YZ}$

Name_____

Three Dimensional Vector Operations

Date_____ Period____

Find the component form of the resultant vector.

1) $\vec{f} = \langle -6, -8, 8 \rangle$
$\vec{g} = \langle 8, -5, 3 \rangle$
Find: $\vec{f} + \vec{g}$

$\langle 2, -13, 11 \rangle$

2) $\vec{u} = \langle 0, 9, -4 \rangle$
$\vec{g} = \langle 9, 7, -7 \rangle$
Find: $\vec{u} - \vec{g}$

$\langle -9, 2, 3 \rangle$

3) Given: $A = (-6, -3, -5)$ $B = (-4, -8, 5)$
$C = (-2, 3, -4)$ $D = (-6, 5, 0)$
Find: $-\overrightarrow{AB} - \overrightarrow{CD}$

$\langle 2, 3, -14 \rangle$

4) Given: $T = (-2, 4, -1)$ $X = (3, -2, -5)$
$Y = (7, 5, -1)$ $Z = (7, 3, -4)$
Find: $\overrightarrow{TX} + \overrightarrow{YZ}$

$\langle 5, -8, -7 \rangle$

5) $\vec{a} = \langle 1, -8, 5 \rangle$
$\vec{g} = \langle -6, 7, -7 \rangle$
Find: $-\vec{a} - 4\vec{g}$

$\langle 23, -20, 23 \rangle$

6) $\vec{u} = \langle -2, 5, -6 \rangle$
$\vec{g} = \langle -2, -3, 8 \rangle$
Find: $4\vec{u} + 10\vec{g}$

$\langle -28, -10, 56 \rangle$

7) Given: $A = (-6, -6, -4)$ $B = (4, -8, 7)$
$C = (8, 9, 5)$ $D = (7, 2, -9)$
Find: $5\overrightarrow{AB} + 10\overrightarrow{CD}$

$\langle 40, -80, -85 \rangle$

8) Given: $P = (0, 9, 7)$ $Q = (-9, -4, 1)$
$R = (9, -9, -4)$ $S = (-8, 2, 0)$
Find: $6\overrightarrow{PQ} - 5\overrightarrow{RS}$

$\langle 31, -133, -56 \rangle$

Find the magnitude of the resultant vector.

9) $\vec{f} = \langle -9, 1, -7 \rangle$
$\vec{v} = \langle 4, -1, 0 \rangle$
Find: $\vec{f} + \vec{v}$

$\sqrt{74} \approx 8.602$

10) $\vec{f} = \langle 5, 1, 0 \rangle$
$\vec{v} = \langle 3, 7, 7 \rangle$
Find: $-\vec{f} + \vec{v}$

$\sqrt{89} \approx 9.434$

11) Given: $A = (-2, 3, 3)$ $B = (4, -9, 0)$
$C = (5, -4, 2)$ $D = (8, -5, 1)$
Find: $\overrightarrow{AB} - \overrightarrow{CD}$

$\sqrt{134} \approx 11.576$

12) Given: $P = (-7, 7, -7)$ $Q = (1, -8, -9)$
$R = (-7, -3, 5)$ $S = (-3, 0, 0)$
Find: $-\overrightarrow{PQ} - \overrightarrow{RS}$

$\sqrt{337} \approx 18.358$

13) $\vec{u} = \langle -6, -7, 1 \rangle$
$\vec{g} = \langle -2, 2, -8 \rangle$
Find: $-3\vec{u} - 10\vec{g}$

$\sqrt{7374} \approx 85.872$

14) $\vec{u} = \langle -4, -4, 9 \rangle$
$\vec{g} = \langle -8, 4, 4 \rangle$
Find: $2\vec{u} + 5\vec{g}$

$2\sqrt{973} \approx 62.386$

15) Given: $A = (8, -3, 9)$ $B = (-5, 1, 6)$
$C = (-4, -9, 5)$ $D = (-8, 8, -2)$
Find: $-\overrightarrow{AB} + \overrightarrow{CD}$

$\sqrt{266} \approx 16.31$

16) Given: $T = (-3, -7, -6)$ $X = (3, 6, -1)$
$Y = (-9, -4, -9)$ $Z = (5, 1, -2)$
Find: $6\overrightarrow{TX} + 7\overrightarrow{YZ}$

$\sqrt{36966} \approx 192.265$