

Trigonometry

Name: _____

Study Guide 21

Class: _____

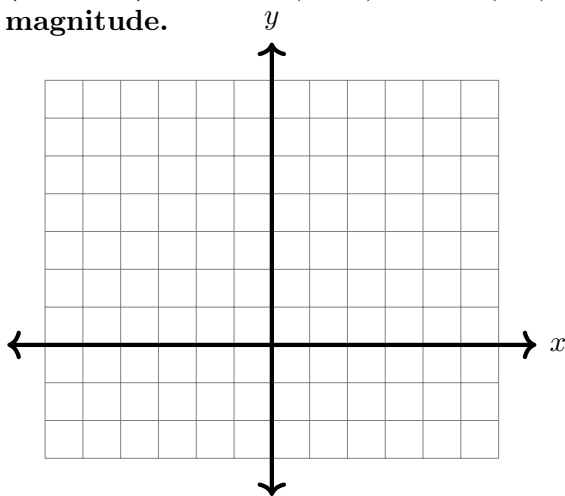
Due Date: _____

Score: _____

No Work \Leftrightarrow No Points

Use Pencil Only \Leftrightarrow Be Neat & Organized

1. (4 points) Given $P(-4,7)$ and $Q(3,2)$, find and draw $u = \overrightarrow{PQ}$ then compute its magnitude.



1. _____

2. Given $u = \langle -5, 3 \rangle$ and $v = \langle 3, -4 \rangle$,

(a) (2 points) find $u + v$

(a) _____

(b) (2 points) find $2u - 3v$

(b) _____

(c) (2 points) find $|v|$

(c) _____

3. (2 points) Given $u = \langle -5, 3 \rangle$ and $v = \langle 1, 5 \rangle$, find $u \bullet v$.

3. _____

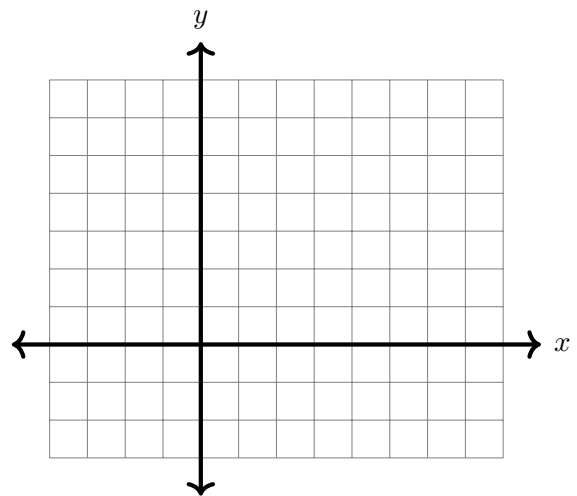
4. (3 points) Given $u = \langle 4, -3 \rangle$ and $v = \langle 2, 7 \rangle$, find the angle θ between them.

4. _____

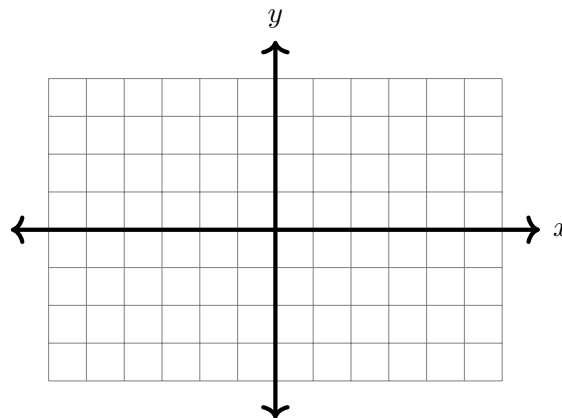
5. (3 points) Given $u = 2i + 6j$ and $v = -6i + 2j$, find the angle θ between them.

5. _____

6. (3 points) Given $u = -3i + 5j$ and $v = 4i + 2j$, draw u, v and $u + v$.



7. (3 points) Given $u = -3i + 2j$ and $v = 2i + 4j$, draw u, v and $u - v$.



8. Given $|v| = 10$, and $\theta = 210^\circ$,

(a) (2 points) find its horizontal component.

(a) _____

(b) (2 points) find its vertical component

(b) _____

(c) (2 points) express v in terms of the vectors i and j .

(c) _____

9. Given $v = \langle -4, 4 \rangle$,

(a) (2 points) find $|v|$

(a) _____

(b) (2 points) find its direction angle θ

(b) _____

(c) (2 points) express v as $v = |v| \cos \theta i + |v| \sin \theta j$

(c) _____

10. Given $u = \langle -2, 4 \rangle$ and $v = \langle 1, 1 \rangle$,

(a) (2 points) find the component of u along v .

(a) _____

(b) (2 points) find $u_1 = \text{proj}_v u$

(b) _____

(c) (2 points) find $u_2 = u - \text{proj}_v u$

(c) _____

11. Given $u = \langle -2, 9 \rangle$ and $v = \langle -1, 2 \rangle$,

(a) (2 points) find the component of u along v .

(a) _____

(b) (2 points) find $u_1 = \text{proj}_v u$

(b) _____

(c) (2 points) find $u_2 = u - \text{proj}_v u$

(c) _____

(d) (2 points) verify that $u_1 + u_2 = u$

(d) _____