

Math 113

EXAM II, March 22, 2001, (1 hour).

NAME:

SECTION:

Instructor:

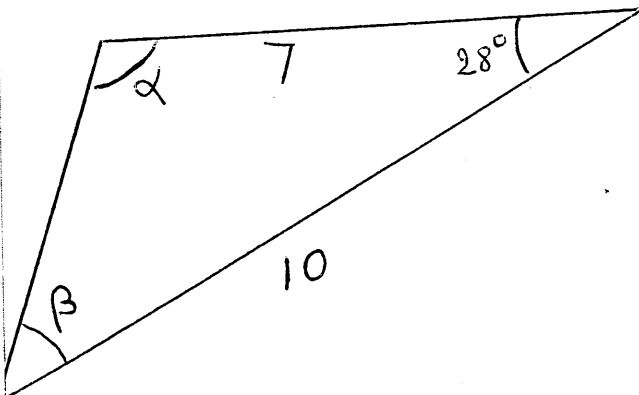
I	II	III	IV	V	Total
30	30	30	15	15	120

To receive credit for an answer, you **MUST** show work justifying that answer.

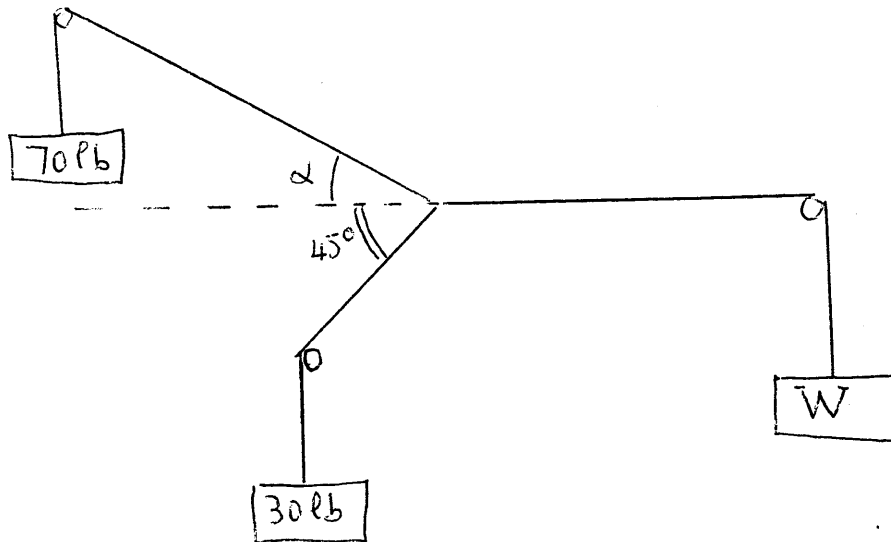
WHENEVER POSSIBLE, GIVE EXACT VALUES.

FULL CREDIT WILL BE GIVEN ONLY FOR CLEAR AND ACCURATE FIGURES.

- I. (30 points)
 Evaluate the length of the third side, and the angles, in the triangle shown below.



II. Determine the weight W and the angle α , if the following is an equilibrium. The figure shows three cables tied together, and the cable to the right is horizontal. (30 points)

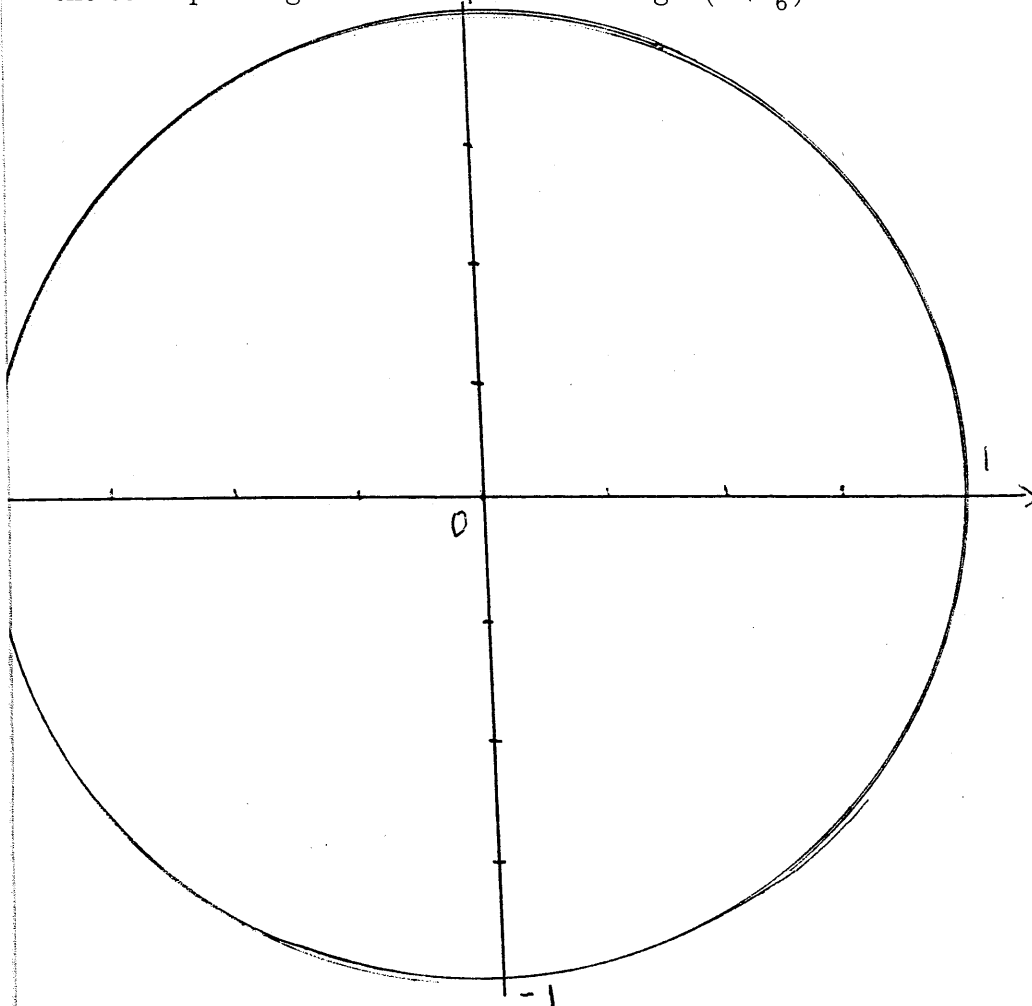


III.

(30 points)

Given $\cos \theta = \frac{1}{4}$, what are the possible values of $\sin(\theta + \frac{\pi}{6})$? (Keep exact values.)

On the figure, show the possible terminal sides for the angle θ (in standard position), and the corresponding terminal sides for the angle $(\theta + \frac{\pi}{6})$.

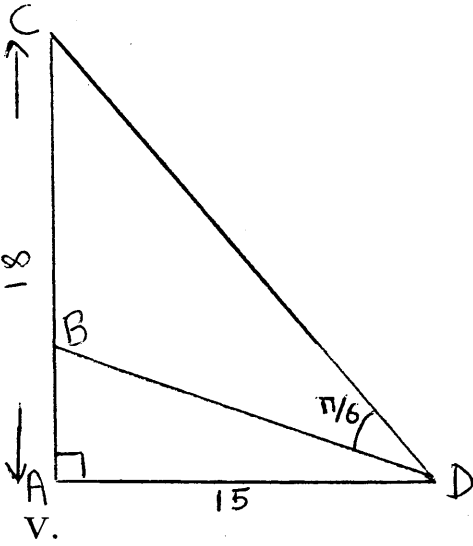


IV.

(15 points)

1) If $\tan \theta = \frac{6}{5}$ give the exact value of $\tan(\theta - \frac{\pi}{6})$.

2) Give the exact value of the length of the line segment AB .



(15 points)

In a city where all the streets are either North-South, or East-West, the walking distance from point A to point B is 1 mile. But the distance in a straight line from A to B (as the crow flies) is .9 mile. Seen from point A , point B is located at an angle of α degrees East of North, with $0 \leq \alpha \leq 45$. Determine α .