

Math 171, Lecture 2
EXAM 3

November 17, 2000

Your name: _____

Give exact answers (in terms of numbers like $\sqrt{2}$, π rather than decimal approximations). **SHOW ALL YOUR WORK** and give reasons for your answers! Be sure to cross out anything that you do **NOT** want graded. Incorrect work left on your paper may cause you to lose points even if there is also correct work displayed.

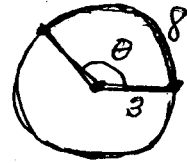
CIRCLE YOUR TA'S NAME:

Junaid Chandran Somalinga Usta

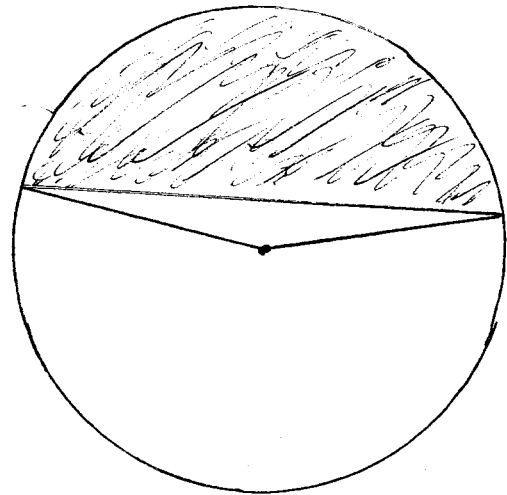
PROBLEM	VALUE	SCORE
1	15	
2	10	
3	15	
4	15	
5	10	
6	15	
7	20	
TOTAL	100	

1. (15 pts)

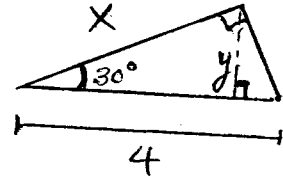
- (a) Find the measure of a central angle θ in a circle of radius 3 meters, if the angle is subtended by an arc of length 8 meters.



- (b) Find the area of the shaded region, if the central angle is 150° .



2. (10 pts) In the given triangle find the length of side x , and of the altitude y .



3. (15 pts)

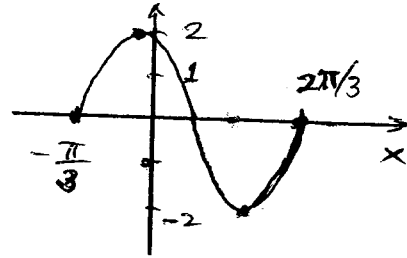
(a) Find the exact values of $\cos\left(\frac{7\pi}{6}\right)$ and $\tan(7\pi/6)$.

(b) State the addition formula for $\sin(x + y)$.

(c) Find the exact value of $\sin(75^\circ)$

4. (15 pts)

- (a) The graph shown is one period of a function of the form $y = a \sin k(x - b)$.
Find a, b, k .



- (b) The same curve is also the graph of a cosine function $y = A \cos K(x - B)$.
Find A, B, K .

5. (10 pts) Given that $\sin t = -1/4$ and $\cos t < 0$, find the values of all the other trig functions.

6. (15 pts) Evaluate these limits:

(a) $\lim_{t \rightarrow 0} \frac{\sin 3t}{t}$

(b) $\lim_{x \rightarrow 0} \frac{x^2 + x}{\sin 2x}$

7. (20 pts) Find dy/dx when:

(a) $y = \sin(x^2)$

7. Continued...

(b) $y = \sqrt{1 + \sin(x^2)}$

(c) $y = \tan^2(\cos x)$

(d) $x + \tan(xy) = 0$