

Name

Signature

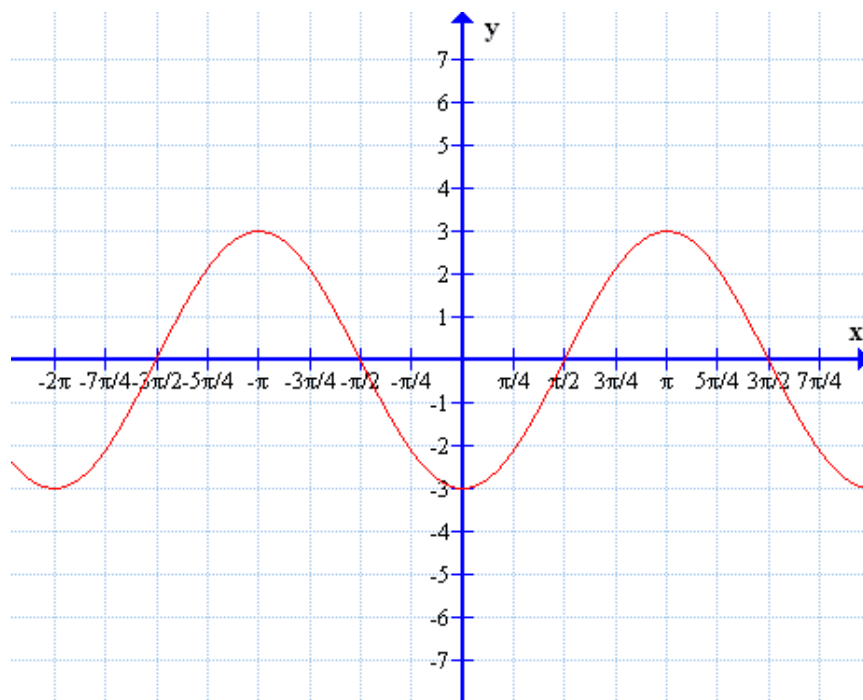
Problem	Total Points	Score
1	10	
2	10	
3	25	
4	20	
5	5	
6	15	
7	10	
8	15	
Total	110	

- You are not permitted to use a calculator on this exam.
- In order to receive full credit, you must show your work. Be wary of doing computations in your head. Instead, write out your computations on the exam paper.
- If you need more room, use the backs of the pages and indicate to the grader that you have done so.
- Raise your hand if you have a question.
- Good luck!

1 (10 points) Find the exact value of

$$-3 \sin(-20^\circ) \sec(70^\circ)$$

2 (10 points) Find the equation of the function which has the following graph. Indicate the amplitude, period, and phase shift .



3 (25 points)

(a) (10 points) Verify the identity

$$\frac{\sin(\alpha + \beta)}{\cos \alpha \cos \beta} = \tan \alpha + \tan \beta$$

(b) (15 points) Verify the identity

$$\frac{1}{1 - \sin \theta} + \frac{1}{1 + \sin \theta} = 2 \sec^2 \theta$$

4 (20 points)

(a) (10 points) Find the exact value of $\cos^2(15^\circ) - \sin^2(15^\circ)$

(b) (10 points) Find the exact value of $\sin(75^\circ)$

5 (5 points) What is the difference between “Verifying an Identity” and “Solving an Equation”
?

6 (15 points)

(a) (5 points) Find the exact value of $\cos(\cos^{-1}(-3))$

(b) (10 points) Find the exact value of $\tan(\sin^{-1}(-\frac{1}{2}))$

7 (10 points) Find the exact value of

$$\sin(2 \tan^{-1}(-\frac{3}{4}))$$

8 (15 points) Solve the equation over the interval $[0, 2\pi)$

$$\cos(x) \cot(x) = \cos(x)$$