

NAME: \_\_\_\_\_

1. 010512b, P.I. A2.A.77

If  $A$  is a positive acute angle and  $\sin A = \frac{\sqrt{5}}{3}$ ,  
 what is  $\cos 2A$ ?

[A]  $\frac{1}{9}$  [B]  $-\frac{1}{3}$  [C]  $\frac{1}{3}$  [D]  $-\frac{1}{9}$

2. 010418b, P.I. A2.A.77

If  $x$  is an acute angle and  $\sin x = \frac{12}{13}$ , then  
 $\cos 2x$  equals

[A]  $\frac{119}{169}$  [B]  $\frac{25}{169}$   
 [C]  $-\frac{25}{169}$  [D]  $-\frac{119}{169}$

3. 010319b, P.I. A2.A.77

If  $\sin \theta = \frac{\sqrt{5}}{3}$ , then  $\cos 2\theta$  equals

[A]  $-\frac{1}{9}$  [B]  $-\frac{1}{3}$  [C]  $\frac{1}{9}$  [D]  $\frac{1}{3}$

4. fall9905b, P.I. A2.A.77

If  $x$  is an acute angle, and  $\cos x = \frac{4}{5}$ , then  
 $\cos 2x$  is equal to

[A]  $\frac{7}{25}$  [B]  $\frac{6}{25}$  [C]  $\frac{-1}{25}$  [D]  $\frac{2}{25}$

5. 060413b, P.I. A2.A.77

If  $\theta$  is an acute angle such that  $\sin \theta = \frac{5}{13}$ ,  
 what is the value of  $\sin 2\theta$ ?

[A]  $\frac{60}{169}$  [B]  $\frac{10}{26}$  [C]  $\frac{12}{13}$  [D]  $\frac{120}{169}$

6. 060604b, P.I. A2.A.77

If  $x$  is a positive acute angle and  $\sin x = \frac{1}{2}$ ,  
 what is  $\sin 2x$ ?

[A]  $\frac{\sqrt{3}}{2}$  [B]  $-\frac{1}{2}$  [C]  $\frac{1}{2}$  [D]  $-\frac{\sqrt{3}}{2}$

7. 010609b, P.I. A2.A.77

If  $\theta$  is a positive acute angle and  
 $\sin 2\theta = \frac{\sqrt{3}}{2}$ , then  $(\cos \theta + \sin \theta)^2$  equals

[A] 1 [B]  $30^\circ$  [C]  $60^\circ$  [D]  $1 + \frac{\sqrt{3}}{2}$

8. 060914b, P.I. A2.A.77

The expression  $\frac{\sin 2A}{2 \cos A}$  is equivalent to

[A]  $\tan A$  [B]  $\cos A$   
 [C]  $\sin A$  [D]  $\frac{1}{2} \sin A$

9. 080617b, P.I. A2.A.77

The expression  $\frac{\sin 2\theta}{\sin^2 \theta}$  is equivalent to

[A]  $2 \tan \theta$  [B]  $\frac{2}{\sin \theta}$   
 [C]  $2 \cos \theta$  [D]  $2 \cot \theta$

10. 080315b, P.I. A2.A.77

The expression  $\frac{2 \cos \theta}{\sin 2\theta}$  is equivalent to

[A]  $\sec \theta$  [B]  $\csc \theta$   
 [C]  $\cot \theta$  [D]  $\sin \theta$

11. 060118b, P.I. A2.A.77

If  $\theta$  is an obtuse angle and  $\sin \theta = b$ , then it  
 can be concluded that

[A]  $\cos 2\theta > b$  [B]  $\cos \theta > b$   
 [C]  $\tan \theta > b$  [D]  $\sin 2\theta < b$

12. 060222b, P.I. A2.A.77

Is  $\frac{1}{2} \sin 2x$  the same expression as  $\sin x$ ?  
 Justify your answer.

- [1] D \_\_\_\_\_
- [2] D \_\_\_\_\_
- [3] A \_\_\_\_\_
- [4] A \_\_\_\_\_
- [5] D \_\_\_\_\_
- [6] A \_\_\_\_\_
- [7] D \_\_\_\_\_
- [8] C \_\_\_\_\_
- [9] D \_\_\_\_\_
- [10] B \_\_\_\_\_
- [11] D \_\_\_\_\_

[2] No, and appropriate work is shown, such as setting the expressions equal to each other, with one trial showing that the two expressions are not always equal.

[1] Yes, but appropriate work is shown, such as using  $0^\circ$  and  $180^\circ$  as trials.

[0] No or yes, and no work or incorrect work is shown.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

- [12] obviously incorrect procedure. \_\_\_\_\_