

**A2.A.77: Half Angle Identities: Apply the double-angle and half-angle formulas for trigonometric functions**

- 1 If  $x$  is a positive acute angle and  $\cos x = \frac{1}{9}$ , what is

the value of  $\cos \frac{1}{2}x$ ?

- 1)  $\frac{2}{3}$
- 2)  $\frac{1}{3}$
- 3)  $\frac{2\sqrt{5}}{3}$
- 4)  $\frac{\sqrt{5}}{3}$

- 2 If  $\cos \theta = \frac{1}{8}$ , the positive value of  $\sin \frac{\theta}{2}$  is

- 1)  $\frac{3}{2}$
- 2)  $\frac{\sqrt{7}}{4}$
- 3)  $\frac{9}{16}$
- 4)  $\frac{3}{4}$

- 3 If  $\cos x = \frac{3}{5}$ , what is the positive value of  $\sin \frac{1}{2}x$ ?

- 4 If  $\tan x = -\frac{24}{7}$ , and  $x$  is an angle in Quadrant II,  
find  $\sin \frac{1}{2}x$ .

- 5 If  $\cos A = \frac{4}{5}$ , find the positive value of  $\tan \frac{1}{2}A$ .

- 6 What is a positive value of  $\tan \frac{1}{2}x$ , when

$\sin x = 0.8$ ?

- 1) 0.5
- 2) 0.4
- 3) 0.33
- 4) 0.25

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### Answer Section

1 ANS: 4 REF: 080135siii

2 ANS: 2 REF: 019426siii

3 ANS:

$$\frac{\sqrt{5}}{5}$$

REF: 068117siii

4 ANS:

$$\frac{4}{5}$$

REF: 089441siii

5 ANS:

$$\frac{1}{3}$$

REF: 068409siii

6 ANS: 1

$$\text{If } \sin x = 0.8, \text{ then } \cos x = 0.6. \quad \tan \frac{1}{2}x = \sqrt{\frac{1-0.6}{1+0.6}} = \sqrt{\frac{0.4}{1.6}} = 0.5.$$

REF: 061220a2