## F.TF.C.9: Half Angle Identities

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

**F.TF.C.9: Half Angle Identities**
**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

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

REF: 061220a2