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1. In right triangle ΔABC, $\sin A = \frac{1}{2}$. What is $\cos A$?

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

[D] $\frac{\sqrt{3}}{3}$ [E] none of the above

2. Given
$\sin\theta = \frac{3}{7}$ and $\sec\theta < 0$, find $\cos\theta$ and $\tan\theta$.

[A] $\cos\theta = -\frac{2\sqrt{10}}{7}$, $\tan\theta = -\frac{3}{2\sqrt{10}}$

[B] $\cos\theta = -\frac{2\sqrt{10}}{7}$, $\tan\theta = \frac{3}{2\sqrt{10}}$

[C] $\cos\theta = \frac{2\sqrt{10}}{7}$, $\tan\theta = \frac{3}{2\sqrt{10}}$

[D] $\cos\theta = -2\sqrt{10}$, $\tan\theta = -\frac{7}{2\sqrt{10}}$

3. Given
$\sin\theta = \frac{1}{4}$ and $\sec\theta < 0$, find $\cos\theta$ and $\tan\theta$.

[A] $\cos\theta = -\frac{\sqrt{15}}{4}$, $\tan\theta = -\frac{1}{\sqrt{15}}$

[B] $\cos\theta = \frac{\sqrt{15}}{4}$, $\tan\theta = \frac{1}{\sqrt{15}}$

[C] $\cos\theta = -\sqrt{15}$, $\tan\theta = -\frac{4}{\sqrt{15}}$

[D] $\cos\theta = -\frac{\sqrt{15}}{4}$, $\tan\theta = \frac{1}{\sqrt{15}}$

4. Given
$\sin\theta = \frac{2}{11}$ and $\sec\theta < 0$, find $\cos\theta$ and $\tan\theta$.

[A] $\cos\theta = -\frac{3\sqrt{13}}{11}$, $\tan\theta = \frac{2}{3\sqrt{13}}$

[B] $\cos\theta = -\frac{3\sqrt{13}}{11}$, $\tan\theta = -\frac{2}{3\sqrt{13}}$

[C] $\cos\theta = \frac{3\sqrt{13}}{11}$, $\tan\theta = \frac{2}{3\sqrt{13}}$

[D] $\cos\theta = -3\sqrt{13}$, $\tan\theta = -\frac{11}{3\sqrt{13}}$

5. Given
$\sin\theta = \frac{5}{12}$ and $\sec\theta < 0$, find $\cos\theta$ and $\tan\theta$.

[A] $\cos\theta = -\sqrt{119}$, $\tan\theta = -\frac{12}{\sqrt{119}}$

[B] $\cos\theta = \frac{\sqrt{119}}{12}$, $\tan\theta = \frac{5}{\sqrt{119}}$

[C] $\cos\theta = -\frac{\sqrt{119}}{12}$, $\tan\theta = \frac{5}{\sqrt{119}}$

[D] $\cos\theta = -\frac{\sqrt{119}}{12}$, $\tan\theta = -\frac{5}{\sqrt{119}}$

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6. Given
$\sin\theta = \frac{1}{3}$ and $\sec\theta < 0$, find $\cos\theta$ and $\tan\theta$.

[A] $\cos\theta = -2\sqrt{2}$, $\tan\theta = -\frac{3}{2\sqrt{2}}$

[B] $\cos\theta = -\frac{2\sqrt{2}}{3}$, $\tan\theta = \frac{1}{2\sqrt{2}}$

[C] $\cos\theta = \frac{2\sqrt{2}}{3}$, $\tan\theta = \frac{1}{2\sqrt{2}}$

[D] $\cos\theta = -\frac{2\sqrt{2}}{3}$, $\tan\theta = -\frac{1}{2\sqrt{2}}$

7. Given
$\sin\theta = \frac{1}{3}$ and $\sec\theta < 0$, find $\cos\theta$ and $\tan\theta$.

[A] $\cos\theta = -2\sqrt{2}$, $\tan\theta = -\frac{3}{2\sqrt{2}}$

[B] $\cos\theta = -\frac{2\sqrt{2}}{3}$, $\tan\theta = -\frac{1}{2\sqrt{2}}$

[C] $\cos\theta = -\frac{2\sqrt{2}}{3}$, $\tan\theta = \frac{1}{2\sqrt{2}}$

[D] $\cos\theta = \frac{2\sqrt{2}}{3}$, $\tan\theta = \frac{1}{2\sqrt{2}}$

8. Given
$\sin\theta = \frac{1}{4}$ and $\sec\theta < 0$, find $\cos\theta$ and $\tan\theta$.

[A] $\cos\theta = -\frac{\sqrt{15}}{4}$, $\tan\theta = \frac{1}{\sqrt{15}}$

[B] $\cos\theta = -\frac{\sqrt{15}}{4}$, $\tan\theta = -\frac{1}{\sqrt{15}}$

[C] $\cos\theta = \frac{\sqrt{15}}{4}$, $\tan\theta = \frac{1}{\sqrt{15}}$

[D] $\cos\theta = -\sqrt{15}$, $\tan\theta = -\frac{4}{\sqrt{15}}$

9. Given
$\sin\theta = \frac{3}{7}$ and $\sec\theta < 0$, find $\cos\theta$ and $\tan\theta$.

[A] $\cos\theta = -\frac{2\sqrt{10}}{7}$, $\tan\theta = \frac{3}{2\sqrt{10}}$

[B] $\cos\theta = -2\sqrt{10}$, $\tan\theta = -\frac{7}{2\sqrt{10}}$

[C] $\cos\theta = -\frac{2\sqrt{10}}{7}$, $\tan\theta = -\frac{3}{2\sqrt{10}}$

[D] $\cos\theta = \frac{2\sqrt{10}}{7}$, $\tan\theta = \frac{3}{2\sqrt{10}}$

10. ΔABC has a right angle at C. Write BC and AC in terms of $\sin A$ or $\cos A$. Then use the Pythagorean Theorem to show that $(\sin A)^2 + (\cos A)^2 = 1$.

[1] C

[2] A

[3] A

[4] B

[5] D

[6] D

[7] B

[8] B

[9] C

$BC = AB(\sin\ A)$ and $AC = AB(\cos\ A)$.
$(BC)^2 + (AC)^2 = (AB)^2(\sin\ A)^2 + (AB)^2(\cos\ A)^2$
$= (AB)^2[(\sin\ A)^2 + (\cos\ A)^2]$.
[10] By the Pythagorean Theorem, $(BC)^2 + (AC)^2 = (AB)^2$, so $(\sin\ A)^2 + (\cos\ A)^2 = 1$.