Multiple choice questions - Further trigonometry

Year: Year 13 · 10

Question 1 For small θ in radians, $\cos\theta \approx$

- ◯ **A.** $1 - \frac{\theta^2}{2}$
- ◯ **B.** $1 - \theta$
- ◯ **C.** $1 + \frac{\theta^2}{2}$
- ◯ **D.** θ

Question 2 $\sec x$ equals

- ◯ **A.** $\dfrac{1}{\sin x}$
- ◯ **B.** $\dfrac{1}{\cos x}$
- ◯ **C.** $\dfrac{1}{\tan x}$
- ◯ **D.** $\dfrac{\cos x}{\sin x}$

Question 3 $1 + \cot^2\theta \equiv$

- ◯ **A.** $\sec^2\theta$
- ◯ **B.** $\tan^2\theta$
- ◯ **C.** $\operatorname{cosec}^2\theta$
- ◯ **D.** $\sin^2\theta$

Question 4 $\sin(A + B) =$

- ◯ **A.** $\sin A \sin B + \cos A \cos B$
- ◯ **B.** $\sin A \cos B - \cos A \sin B$
- ◯ **C.** $\cos A \cos B - \sin A \sin B$
- ◯ **D.** $\sin A \cos B + \cos A \sin B$

Question 5 $\cos 2A$ can be written as

- ◯ **A.** $1 - 2\sin^2 A$
- ◯ **B.** $2\sin^2 A - 1$
- ◯ **C.** $1 + 2\cos^2 A$
- ◯ **D.** $2\sin A \cos A$

Question 6 For $3\sin x + 4\cos x = R\sin(x+\alpha)$, $R =$

- **A.** 7
- **B.** 5
- **C.** 12
- **D.** $\sqrt{7}$

Question 7 The maximum value of $5\cos x - 12\sin x$ is

- **A.** 17
- **B.** 7
- **C.** 13
- **D.** $\sqrt{17}$

Question 8 $\sin 2x =$

- **A.** $2\sin x$
- **B.** $\sin^2 x$
- **C.** $\cos^2 x - \sin^2 x$
- **D.** $2\sin x \cos x$

Question 9 $\cos 75^\circ$ equals

- **A.** $\dfrac{\sqrt{6}-\sqrt{2}}{4}$
- **B.** $\dfrac{\sqrt{6}+\sqrt{2}}{4}$
- **C.** $\dfrac{\sqrt{3}}{2}$
- **D.** $\dfrac{\sqrt{2}}{4}$

Question 10 The graph of $y = \operatorname{cosec} x$ has asymptotes at

- **A.** $x = 90^\circ, 270^\circ$
- **B.** $x = 0^\circ, 180^\circ, 360^\circ$
- **C.** $x = 45^\circ, 135^\circ$
- **D.** no asymptotes

Answer grid - Further trigonometry

Year: Year 13

Question	Answer	Explanation
1	**A**	Standard approximation.
2	**B**	Definition.
3	**C**	Divide $\sin^2+\cos^2=1$ by $\sin^2$.
4	**D**	Compound angle.
5	**A**	Double angle.
6	**B**	sqrt(9+16).
7	**C**	sqrt(25+144)=13.
8	**D**	Double angle.
9	**A**	cos(45+30)=cos45cos30-sin45sin30.
10	**B**	Where sin x=0.