Special Angles, Reciprocal Ratios & Trig Equations (Grade 10)

MEMORANDUM

Name: ..... Class: .....

Date: .....

MARK ____ / 18

Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

1 Write down the value of sin 30° without using a calculator. (1)

$\frac{1}{2}$ ✓ (1)

2 Evaluate sin 30° + cos 60° without using a calculator. (2)

$\frac{1}{2} + \frac{1}{2} = 1$ ✓✓ (2)

3 Evaluate tan 60° × cos 30° without using a calculator. (2)

$\sqrt{3} \times \frac{\sqrt{3}}{2} = \frac{3}{2}$ ✓✓ (2)

4 Write down the value of cosec30°. (1)

$\frac{1}{\sin 30°} = \frac{1}{\frac{1}{2}} = 2$ ✓ (1)

5 Write down sec60°. (1)

$\frac{1}{\cos 60°} = 2$ ✓ (1)

6 Write down cot45°. (1)

$\frac{1}{\tan 45°} = 1$ ✓ (1)

7 Solve for θ if $2\sin\theta = 1$ and $\theta \in [0° ; 90°]$. (2)

$\sin\theta = \frac{1}{2} \rightarrow \theta = 30°$ ✓✓ (2)

8 Solve for θ if $3\tan\theta - 3 = 0$ and $\theta \in [0° ; 90°]$. **(3)**

> $\tan\theta = 1 \rightarrow \theta = \mathbf{45°}$ ✓✓✓ (3)

9 Solve for θ if $\cos 2\theta = 0{,}5$ and $\theta \in [0° ; 90°]$. **(3)**

> $2\theta = 60° \rightarrow \theta = \mathbf{30°}$ ✓✓✓ (3)

10 Why is tan 90° undefined? **(2)**

> $\tan\theta = \frac{\sin\theta}{\cos\theta}$ and $\cos 90° = 0$, so it would mean **dividing by zero**. ✓✓ (2)

TOTAL: 18 marks

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