

Formative assessment

Name.Surname

Total marks 20 /

1. [maximum mark: 2]

The point below are on the unit circle. Find the exact value of unknown coordinate in each point.

(a)  $A\left(\frac{-\sqrt{3}}{2}; y\right)$  [1]

(b)  $B\left(x; \frac{\sqrt{2}}{2}\right)$  [1]

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2. [maximum mark: 5]

In triangle ABC, AB = 9 cm, AC = 12 cm, and  $\hat{B}$  is twice the size of  $\hat{C}$ . Find the cosine of  $\hat{C}$ .

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3. [maximum mark: 4] **[No GDC]**

$\alpha$  is an acute angle.

$$\frac{3 \cdot \sin \alpha + 1}{4 - 5 \cdot \sin \alpha} = \frac{2}{5}$$

Find  $\cos \alpha$

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4. [maximum mark: 4] **[No GDC]**

Simplify the expression.

$$\frac{\tan 25^\circ \cdot \tan 65^\circ}{\sin^2 25^\circ + \sin^2 65^\circ} + 2 =$$

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5. [maximum mark: 5] **[No GDC]**

Simplify the expression.

$$(\sec x - \tan x)^2 (1 + \sin x) =$$

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# Markschema

Q2)

$$\frac{9}{\sin C} = \frac{12}{\sin B} \quad (\text{M1})$$

$$\frac{9}{\sin C} = \frac{12}{\sin 2C} \quad \text{A1}$$

$$\text{Using double angle formula } \frac{9}{\sin C} = \frac{12}{2 \sin C \cos C} \quad \text{M1}$$

$$\Rightarrow 9(2 \sin C \cos C) = 12 \sin C$$

$$\Rightarrow 6 \sin C (3 \cos C - 2) = 0 \text{ or equivalent} \quad (\text{A1})$$

$$(\sin C \neq 0)$$

$$\Rightarrow \cos C = \frac{2}{3} \quad \text{A1}$$

**[5]**