

QCM d'autoévaluation, exercice 127 page 265

Sésamath

Maths TS obligatoire



L'écriture exponentielle de $z = \frac{5\sqrt{3}}{2} \left(\frac{1}{2} + \frac{\sqrt{3}}{2}i \right)$ est :

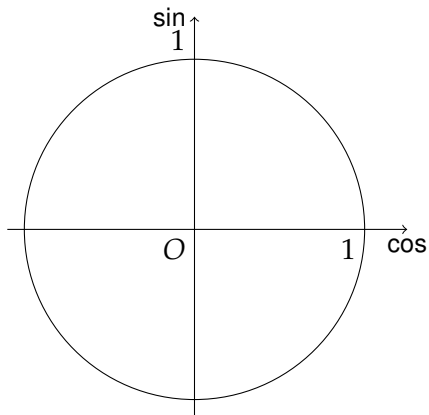
a) $\frac{15}{2}e^{\frac{\pi}{3}i}$

b) $\frac{5\sqrt{3}}{2}e^{\frac{\pi}{6}i}$

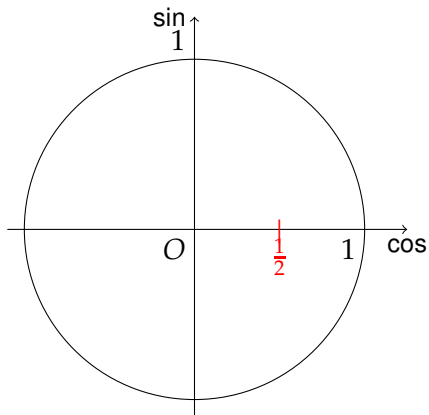
c) $\frac{15}{2}e^{\frac{\pi}{6}i}$

d) $\frac{5\sqrt{3}}{2}e^{\frac{\pi}{3}i}$

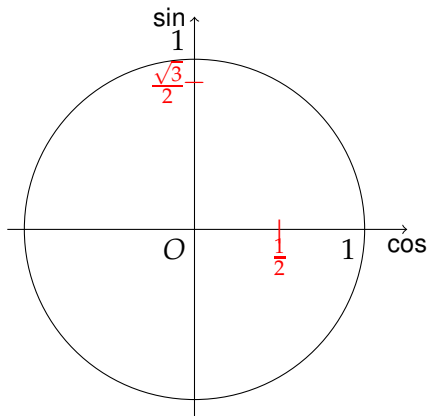
Utilisons un cercle trigonométrique :



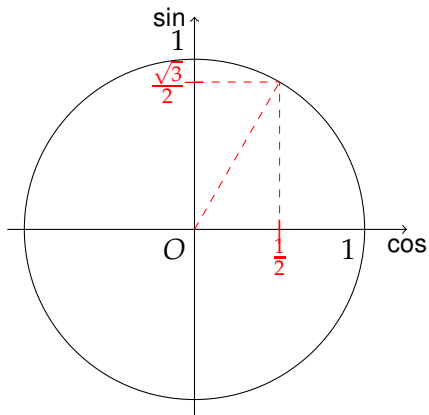
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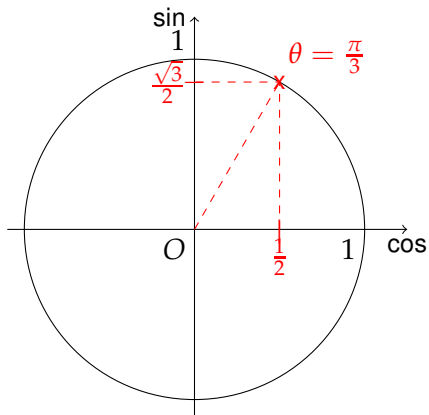
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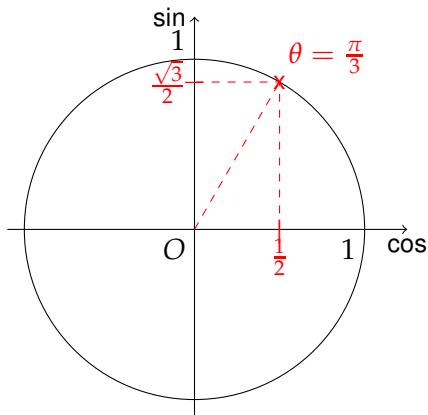
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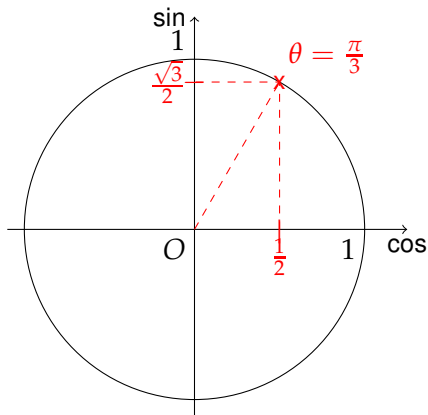


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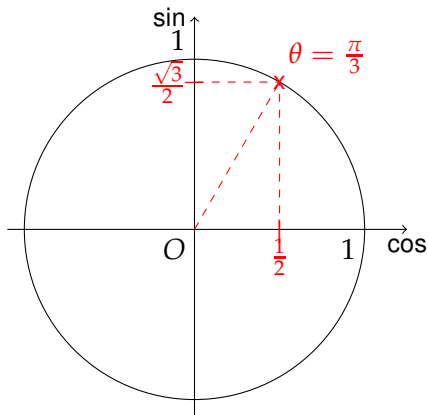
$$\text{donc } z = \frac{5\sqrt{3}}{2} \left(\frac{1}{2} + \frac{\sqrt{3}}{2}i \right) = \frac{5\sqrt{3}}{2} \left(\cos \frac{\pi}{3} + i \sin \frac{\pi}{3} \right)$$

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$$\text{donc } z = \frac{5\sqrt{3}}{2} \left(\frac{1}{2} + \frac{\sqrt{3}}{2}i \right) = \frac{5\sqrt{3}}{2} \left(\cos \frac{\pi}{3} + i \sin \frac{\pi}{3} \right) = \frac{5\sqrt{3}}{2} e^{i\frac{\pi}{3}}$$

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réponse **d)**