

Name _____

Date _____

Year Group _____

Find the product of the following complex numbers in trigonometric form

1. $z_1 = 8\left[\cos\left(\frac{3\pi}{2}\right) + i \sin\left(\frac{3\pi}{2}\right)\right]$ and $z_2 = 2\left[\cos\left(\frac{\pi}{4}\right) + i \sin\left(\frac{\pi}{4}\right)\right]$

Find the product

Steps => $z = \underline{\hspace{1cm}} * \underline{\hspace{1cm}} * \left[\cos\left(\frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}} + \frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}}\right) + i \sin\left(\frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}} + \frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}}\right)\right]$

Steps => $z = \underline{\hspace{1cm}} * \left[\cos\left(\frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}}\right) + i \sin\left(\frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}}\right)\right]$

Steps => $z = \underline{\hspace{1cm}} * \left[\frac{\sqrt{\underline{\hspace{1cm}}}}{\underline{\hspace{1cm}}} + i * -\frac{\sqrt{\underline{\hspace{1cm}}}}{\underline{\hspace{1cm}}}\right]$

Answer => $z = \underline{\hspace{1cm}}\sqrt{\underline{\hspace{1cm}}} \underline{\hspace{1cm}} i\sqrt{\underline{\hspace{1cm}}}$

Find the quotient

Steps => $z = \underline{\hspace{1cm}} / \underline{\hspace{1cm}} * \left[\cos\left(\frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}} - \frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}}\right) + i \sin\left(\frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}} - \frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}}\right)\right]$

Steps => $z = \underline{\hspace{1cm}} * \left[\cos\left(\frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}}\right) - i \sin\left(\frac{\underline{\hspace{1cm}}\pi}{\underline{\hspace{1cm}}}\right)\right]$

Steps => $z = \underline{\hspace{1cm}} * \left[-\frac{\sqrt{\underline{\hspace{1cm}}}}{\underline{\hspace{1cm}}} - i * -\frac{\sqrt{\underline{\hspace{1cm}}}}{\underline{\hspace{1cm}}}\right]$

Answer => $z = \underline{\hspace{1cm}}\sqrt{\underline{\hspace{1cm}}} \underline{\hspace{1cm}} i\sqrt{\underline{\hspace{1cm}}}$