



$$\cos 3\alpha = -\frac{9}{16}$$

$$3\alpha = \pi - \cos^{-1}\left(\frac{9}{16}\right)$$

The angle $\cos^{-1}\left(\frac{9}{16}\right)$ is constructible (it is θ shown above) $\therefore 3\alpha$ is constructible.

You have to be careful using a geometric argument as direction is important, but has no algebraic meaning.