

$$5 + \sqrt{-12} = 5 + \sqrt{-1}\sqrt{4}\sqrt{3} = 5 + 2i\sqrt{3}$$

and

$$8 - \sqrt{-27} = 8 - \sqrt{-1}\sqrt{9}\sqrt{3} = 8 - 3i\sqrt{3}$$

$$(5 + \sqrt{-12})(8 - \sqrt{-27}) = (5 + 2i\sqrt{3})(8 - 3i\sqrt{3})$$

$$= 40 - 15i\sqrt{3} + 16i\sqrt{3} - 6i^2(\sqrt{3})^2 = 40 + i\sqrt{3} - 6(-1)(3)$$

$$= 40 + i\sqrt{3} + 18 = 58 + i\sqrt{3}$$