

Change into polar form. ($rcis\theta$)

1. $-2\sqrt{3} + 2i$

2. $3 - i\sqrt{3}$

3. $2 + 2i$

1.) _____

2.) _____

3.) _____

4. $-3i$

5. $\frac{1}{2} - \frac{\sqrt{3}}{2}i$

6. -1

4.) _____

5.) _____

6.) _____

Change to rectangular point ($a + bi$). No decimals please!

7. $z = 2cis300^\circ$

8. $z = 3cis0^\circ$

9. $z = -5cis180^\circ$

7.) _____

8.) _____

9.) _____

10. $z = \cos \frac{5\pi}{4} + i \sin \frac{5\pi}{4}$

11. $z = \cos \pi + i \sin \pi$

10.) _____

11.) _____

Find the following **WITHOUT CALCULATORS**. Give answers in $(rcis\theta)$ form (must use polar complex numbers).

12. $(1-i)^4$ 13. $\frac{(1-i\sqrt{3})}{(2+2\sqrt{3}i)}$ 14. $(-2-2i)(-1-i)$ 12.) _____

13.) _____

14.) _____

15. the cube roots of $(1+i)$ there are 3 answers, give answers in $a+bi$ form.

16. solve $z^3 - 1 = 0$ there are 3 answers, give answers in $a+bi$ form.

