SATPREP Name_____

Assignment : Complex No.-2

Date_____

Write each in polar form.

1) $1 - i\sqrt{3}$

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

3) $\frac{\sqrt{57}}{2} - \frac{\sqrt{19}}{2}i$

4) $-\frac{\sqrt{19}}{2} + \frac{\sqrt{57}}{2}i$

Find the absolute value.

5) $2 - 5i$

6) $-3\sqrt{2} - 3i\sqrt{2}$

Simplify. Write your answer in rectangular form.

7) $(2 - 4i)(1 - 4i)$

8) $(1 + 5i)(6 + 5i)$

9) $\dfrac{-\frac{3\sqrt{2}}{2} + \frac{3\sqrt{2}}{2}i}{-\frac{5\sqrt{2}}{2} + \frac{5\sqrt{2}}{2}i}$

10) $\dfrac{3i}{-2 - 4i}$

11) $\left(\sqrt{3} - i\right)^2$

12) $(-3 - 5i)^2$

Find all *n*th roots. Write your answers in polar form.

13) $-\frac{3\sqrt{6}}{2} - \frac{3\sqrt{6}}{2}i,\ n = 3$

14) $-\frac{\sqrt{46}}{2} - \frac{\sqrt{46}}{2}i,\ n = 5$

15) $\frac{3}{2} + \frac{3\sqrt{3}}{2}i,\ n = 5$

16) $-\frac{3}{2} - \frac{3\sqrt{3}}{2}i,\ n = 3$

Answers to Assignment : Complex No.-2

1) $2\left(\cos\frac{5\pi}{3}+i\sin\frac{5\pi}{3}\right)$

2) $2(\cos 210+i\sin 210)$

3) $\sqrt{19}\left(\cos\frac{11\pi}{6}+i\sin\frac{11\pi}{6}\right)$

4) $\sqrt{19}(\cos 120+i\sin 120)$

5) $\sqrt{29}$

6) 6

7) $-14-12i$

8) $-19+35i$

9) $\frac{3}{5}$

10) $-\frac{3}{5}-\frac{3}{10}i$

11) $2-2i\sqrt{3}$

12) $-16+30i$

13) $\sqrt[3]{3\sqrt{3}}(\cos 75+i\sin 75)$
$\sqrt[3]{3\sqrt{3}}(\cos 195+i\sin 195)$
$\sqrt[3]{3\sqrt{3}}(\cos 315+i\sin 315)$

14) $\sqrt[10]{23}(\cos 45+i\sin 45)$
$\sqrt[10]{23}(\cos 117+i\sin 117)$
$\sqrt[10]{23}(\cos 189+i\sin 189)$
$\sqrt[10]{23}(\cos 261+i\sin 261)$
$\sqrt[10]{23}(\cos 333+i\sin 333)$

15) $\sqrt[5]{3}\left(\cos\frac{\pi}{15}+i\sin\frac{\pi}{15}\right)$
$\sqrt[5]{3}\left(\cos\frac{7\pi}{15}+i\sin\frac{7\pi}{15}\right)$
$\sqrt[5]{3}\left(\cos\frac{13\pi}{15}+i\sin\frac{13\pi}{15}\right)$
$\sqrt[5]{3}\left(\cos\frac{19\pi}{15}+i\sin\frac{19\pi}{15}\right)$
$\sqrt[5]{3}\left(\cos\frac{5\pi}{3}+i\sin\frac{5\pi}{3}\right)$

16) $\sqrt[3]{3}(\cos 80+i\sin 80)$
$\sqrt[3]{3}(\cos 200+i\sin 200)$
$\sqrt[3]{3}(\cos 320+i\sin 320)$