

Assignment Complex Number

Date _____

Simplify. Write your answer in rectangular form.

1) $(2 - 5i)^5$

2) $(3 + 2i)^3$

Simplify. Write your answer in polar form.

3) $(6(\cos 150 + i\sin 150))^3$

4) $(3(\cos 225 + i\sin 225))^4$

Find all n th roots. Write your answers in rectangular form.

5) $-i\sqrt{13}, n = 5$

6) $3i, n = 4$

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

7) $6\left(\cos \frac{5\pi}{6} + i\sin \frac{5\pi}{6}\right), n = 5$

8) $3(\cos 135 + i\sin 135), n = 5$

Answers to Assignment Complex Number

1) $4282 + 1475i$

4) $81(\cos 900 + i\sin 900)$

2) $-9 + 46i$

5) $0.76 + 1.05i$

$-0.76 + 1.05i$

$-1.23 - 0.4i$

$-1.29i$

$1.23 - 0.4i$

3) $216(\cos 450 + i\sin 450)$

6) $1.22 + 0.5i$

$-0.5 + 1.22i$

$-1.22 - 0.5i$

$0.5 - 1.22i$

7) $\sqrt[5]{6}\left(\cos \frac{\pi}{6} + i\sin \frac{\pi}{6}\right)$
 $\sqrt[5]{6}\left(\cos \frac{17\pi}{30} + i\sin \frac{17\pi}{30}\right)$
 $\sqrt[5]{6}\left(\cos \frac{29\pi}{30} + i\sin \frac{29\pi}{30}\right)$
 $\sqrt[5]{6}\left(\cos \frac{41\pi}{30} + i\sin \frac{41\pi}{30}\right)$
 $\sqrt[5]{6}\left(\cos \frac{53\pi}{30} + i\sin \frac{53\pi}{30}\right)$

8) $\sqrt[5]{3}(\cos 27 + i\sin 27)$
 $\sqrt[5]{3}(\cos 99 + i\sin 99)$
 $\sqrt[5]{3}(\cos 171 + i\sin 171)$
 $\sqrt[5]{3}(\cos 243 + i\sin 243)$
 $\sqrt[5]{3}(\cos 315 + i\sin 315)$