Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Complex Numbers in Polar Form

Use exact modulus and standard angles. For roots, list every distinct root around one complete turn.

1. Divide 12[cos(0) + i sin(0)] and 4[cos(0) + i sin(0)].

Assumptions: Arguments are coterminal modulo one full turn. Trigonometric-form arguments use the selected angle unit. Divisors are nonzero, powers are at most 6, and every requested root is listed.

2. Convert sqrt(2)e^(i pi/4) to a+bi form.

Assumptions: Arguments are coterminal modulo one full turn. The exponent uses the radian argument; when degrees are selected, the equivalent degree argument is shown in brackets. Divisors are nonzero, powers are at most 6, and every requested root is listed.

Name _____ Score _____ Teacher _____ Date _____

Complex Numbers in Polar Form

Use exact modulus and standard angles. For roots, list every distinct root around one complete turn.

3. Convert z = 0 + 6i to trigonometric polar form.

Assumptions: Arguments are coterminal modulo one full turn. Trigonometric-form arguments use the selected angle unit. Divisors are nonzero, powers are at most 6, and every requested root is listed.

4. Use De Moivre's theorem to find [9e^(i 5pi/3)]^4.

Assumptions: Arguments are coterminal modulo one full turn. The exponent uses the radian argument; when degrees are selected, the equivalent degree argument is shown in brackets. Divisors are nonzero, powers are at most 6, and every requested root is listed.

Name _____ Score _____ Teacher _____ Date _____

Complex Numbers in Polar Form

Use exact modulus and standard angles. For roots, list every distinct root around one complete turn.

5. Find all 4th roots of 4096[cos(5pi/6) + i sin(5pi/6)].

Assumptions: Arguments are coterminal modulo one full turn. Trigonometric-form arguments use the selected angle unit. Divisors are nonzero, powers are at most 6, and every requested root is listed.

6. Multiply 7e^(i pi) and 5e^(i pi).

Assumptions: Arguments are coterminal modulo one full turn. The exponent uses the radian argument; when degrees are selected, the equivalent degree argument is shown in brackets. Divisors are nonzero, powers are at most 6, and every requested root is listed.

Name _____ Score _____ Teacher _____ Date _____

Complex Numbers in Polar Form

Use exact modulus and standard angles. For roots, list every distinct root around one complete turn.

7. Use De Moivre's theorem to find [11[cos(3pi/2) + i sin(3pi/2)]]^6.

Assumptions: Arguments are coterminal modulo one full turn. Trigonometric-form arguments use the selected angle unit. Divisors are nonzero, powers are at most 6, and every requested root is listed.

8. Divide 10e^(i 3pi/2) and 4e^(i 3pi/2).

Assumptions: Arguments are coterminal modulo one full turn. The exponent uses the radian argument; when degrees are selected, the equivalent degree argument is shown in brackets. Divisors are nonzero, powers are at most 6, and every requested root is listed.