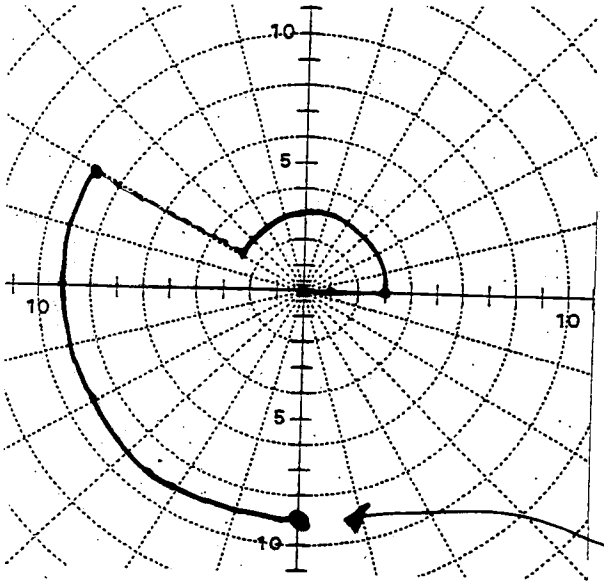
MULTIPLY COMPLEX NUMBERS NAME_____

1. Multiply these polar points and show the polar multiplication by indicating the scalers and rotations
Change each point to a complex number, multiply, and show that your two answers are equivalent.

A. $[3, 150°] \cdot [3, 120°]$

$[9, 270°]$



$(3\cos 150°, 3\sin 150°) \cdot (3\cos 120°, 3\sin 120°$

$(-2.60, 1.5) \cdot (-1.5, 2.6)$

$(-2.6 + 1.5i)(-1.5 + 2.6i)$

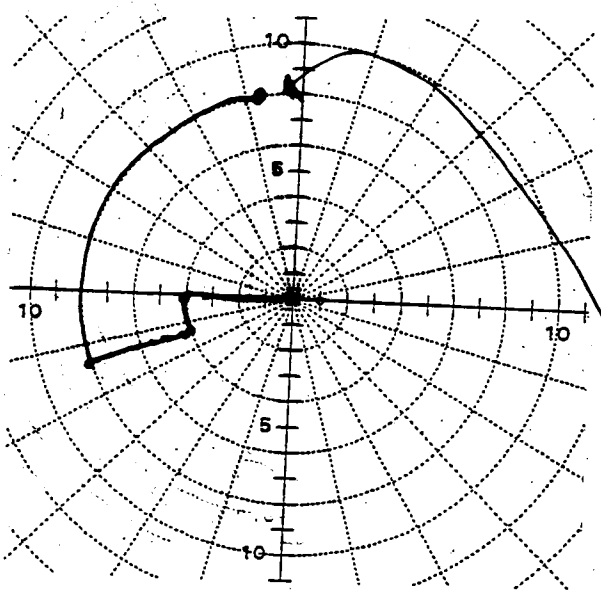
$3.9 - 6.76i - 2.25i + 3.9i^2$

$0 - 9.01i$

$(0, -9.01)$

B. $[-4, 20°] \cdot [2, -100°]$

$[-8, -80°]$



$(-4\cos 20°, -4\sin 20°)(2\cos -100°, 2\sin -100°$

$(-3.76, -1.37)(-0.35, -1.97)$

$(-3.76 - 1.37i)(-0.35 - 1.97i)$

$1.32 + 7.4i + 0.48i + 2.7i^2$

$-1.38 + 7.88i$

$(-1.38, 7.88)$

151A

2. Find the product of these two rectangular points and graph your solution. Change each of the original rectangular points to polar, multiply, and show that your answers are equivalent.

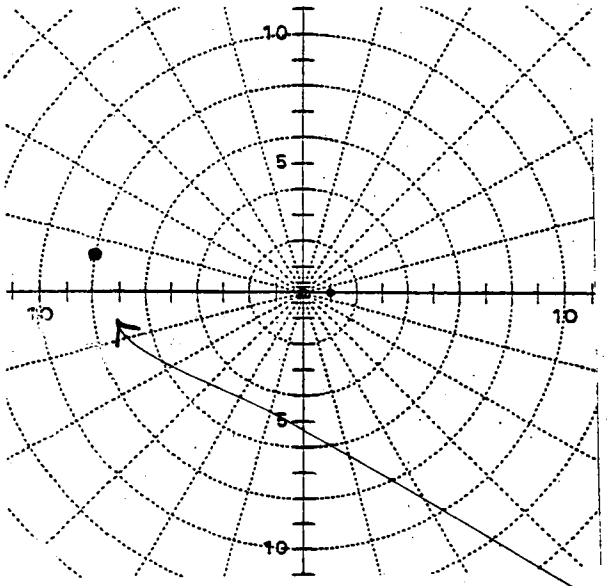
$(-3, 2)\ (2, 1)$

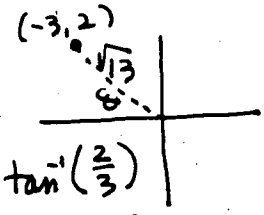
$(-3+2i)(2+1i)$

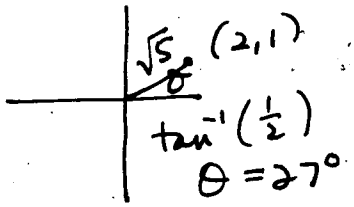
$-6+-3i+4i+2i^2$

$-8+i$

$(-8, 1)$







$[\sqrt{13}, -34°] \cdot [\sqrt{5}, 27°]$

$[-\sqrt{65}, -7°]$

matches.

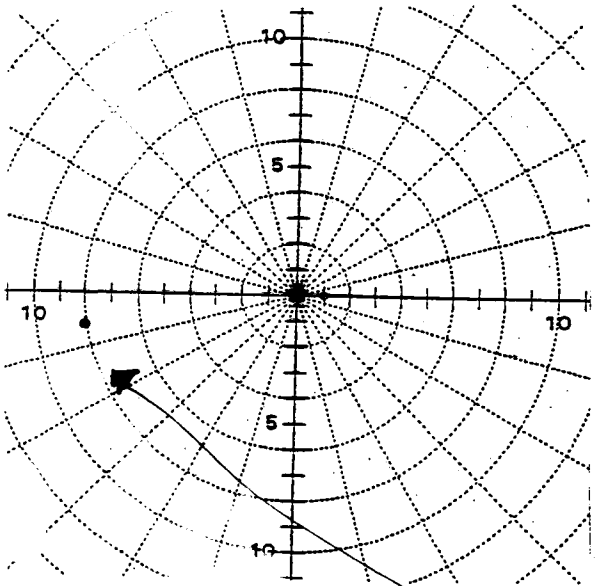
$(-1, -2)\ (2, -3)$

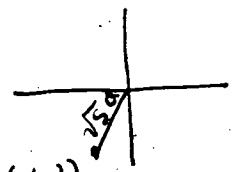
$(-1-2i)(2-3i)$

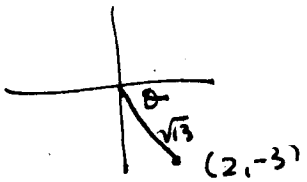
$-2+3i-4i+6i^2$

$-8-1i$

$(-8, -1)$







$[-\sqrt{5}, 63°] \cdot [\sqrt{13}, -56°]$

$[-\sqrt{65}, 7°]$

matches.