Problem 1.6

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Problem 1.6

0.0/4.0 points (ungraded)

Find all harmonic functions $f(z = x + iy) = u(x, y) + iv(x, y)$ satisfying the requirements below. You need to find the general form of such $f(z)$ with two arbitrary constants a (complex) and b (real) ($f(z)$ should be zero at $a = b = 0$). Use i for complex unity, sqrt(#) for $\sqrt{\#}$, #^2 for $\#^2$, e^(#) for the exponential function and ln(#) for logarithmic function.

1)$u = \varphi(x^2 - y^2)$

.
$f(z) =$

2)$u = \varphi\left(\frac{y}{x}\right)$

.
$f(z) =$

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This problem is numbered 6, while the previous was numbered 4. Problem 5 where it is?