

Transcomputation - Exercise 1

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1 Evaluate the following transreal expressions

1.1 $\infty + 1$

1.2 $\infty - 1$

1.3 $\infty + \infty$

1.4 $\infty - \infty$

1.5 $3 \times \infty$

1.6 $3 \div \infty$

1.7 $\infty \div (-3)$

1.8 $\infty \div \infty$

2 Check the transreal, distributivity rules

3 Prove $0^0 = \Phi$

Hint: $e^{-\infty} = 0$, $e^{\infty} = \infty$, $e^{\Phi} = \Phi$. The transreal, natural logarithm, $\ln y$, is the inverse of the transreal exponential, e^x .

4 Prove $e^{-\infty} = 0$, $e^{\infty} = \infty$, $e^{\Phi} = \Phi$

Keep track of your assumptions and reflect on how you would develop transreal analysis.