

Handout 4: Irrational to the Core - Answers

1. Solve $y = 3^x + 2^{2x} + 1$ for $x = 3$.

$$y = 92.$$

2. Solve $y = \log_5(5x) + \log e^x$ for $x = 2$.

$$y = 2.2992.$$

3. Solve $y^2 = \log x^2$ for $x = 5$.

$$y = 1.1823.$$

4. Solve $y = \log_4(16x^2)$ for $x = 4$ without a calculator.

$$y = 4.$$

5. Solve $y = \ln(4e^2)$.

$$y = 3.3863.$$

6. Simplify and solve $10^{5x+y} = 100^{(2x)}$ for $x = 2$ without a calculator.

$$y = -2.$$

7. Simplify and solve $y = 6^{\log_6(2x^2)}$ for $x = 4$ without a calculator.

$$y = 32.$$

8. Simplify and solve $4y = \ln e^{(15x+y)}$ for $x = 3$ without a calculator.

$$y = 15.$$

9. Simplify and solve $y = \log_7(49^{-2x})$ for $x = 4$ without a calculator.

$$y = -16.$$

10. Solve $y = e^{\ln(2x+7)} + 2x^{\log_1 016} 2 \log(3x)$ for $x = 5$.

$$y = 30.6478.$$