

Solve each equation. YOU MUST SHOW YOUR WORK ON SEPARATE PAPER.

1.  $10^{x-3} = 100^{4x-5}$

2.  $36^{x-9} = 6^{2x}$

3.  $125^{4x} = 25^{x-1}$

4.  $9^{3x+4} = 27^{4x}$

5.  $25^{x-3} = \left(\frac{1}{5}\right)^{4x}$

6.  $8^{5x} = 16^{3x+4}$

7.  $27^{2x} = 3^{x-7}$

8.  $\left(\frac{1}{8}\right)^{x+7} = 8^{2x}$

9.  $4^x - 5 = 3$

10.  $2^x - 3 = 29$

11.  $\left(\frac{1}{3}\right)^{2x-1} - 10 = -1$

12.  $\left(\frac{1}{4}\right)^{3x} = 8^{x+1}$