

25. Dina is trying to solve an exponential equation. The equation and the steps she used to find her solution are described below.

$$2^{12x+5} = 8^{2x+1}$$

Step 1: $2^{12x+5} = (2^4)^{2x+1}$

Step 2: $2^{12x+5} = 2^{8x+4}$

Step 3: $12x + 5 = 8x + 4$

Step 4: $4x + 1 = 0$

$$x = -\frac{1}{4}$$

- A. Check Dina's solution to show that she is incorrect.

- B. Find the mistake in Dina's work and explain why this step is incorrect.

- C. Determine the solution of Dina's exponential equation and check to verify the answer. Show all work.