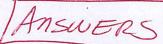Solve each equation. Round to the nearest hundredth when necessary.

1. $41 - 8\log_2(x+1) = 9$

2. $10 + 2(9)^{5x} = 13$

3. $\frac{1}{3}e^{4x-2} - 7 = 11$

Solve each equation. Round to the nearest hundredth when necessary.

1. $41 - 8\log_2(x+1) = 9$

$-41 -41$

$$\frac{-8\log_2(x+1)}{-8} = \frac{-32}{-8}$$

$$\log_2(x+1) = 4$$

$$2^4 = x+1$$

$$16 = x+1$$

$-1 -1$

$$\boxed{x = 15}$$

2. $10 + 2(9)^{5x} = 13$

$-10 -10$

$$\frac{2(9)^{5x}}{2} = \frac{3}{2}$$

$$9^{5x} = 1.5$$

$$\frac{\log_9 1.5}{5} = \frac{5x}{5} \qquad \boxed{x = 0.04}$$

3. $\frac{1}{3}e^{4x-2} - 7 = 11$

$ +7 \quad +7$

$$3 \cdot \frac{1}{3}e^{4x-2} = 18 \cdot 3$$

$$e^{4x-2} = 54$$

$$\ln 54 = 4x - 2$$

$+2 +2$

$$\frac{\ln 54 \cdot 2}{4} = \frac{4x}{4} \qquad \boxed{x = 1.50}$$

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