

# Entry Slip Solutions

$$\textcircled{1} \quad \frac{5}{8} \sqrt{2x-16} + 2 = 12$$

$$\text{Step } \textcircled{1} \quad \frac{5}{8} \sqrt{2x-16} + 2 = 12$$

$$\frac{5}{8} \sqrt{2x-16} = 10$$

$$\text{Step } \textcircled{2} \quad \frac{8}{5} \left( \frac{5}{8} \sqrt{2x-16} \right) = 10 \left( \frac{8}{5} \right)$$

$$\sqrt{2x-16} = 16$$

$$\text{Step } \textcircled{3} \quad \left( \sqrt{2x-16} \right)^2 = (16)^2$$

$$2x-16 = 256$$

$$\text{Step } \textcircled{4} \quad \begin{array}{r} 2x-16 = 256 \\ \quad \quad \quad +16 \quad \quad +16 \\ \hline \end{array}$$

$$2x = 272$$

$$\text{Step } \textcircled{5} \quad \frac{2x}{2} = \frac{272}{2}$$

$$\boxed{x = 136}$$

Double Check

$$\frac{5}{8} \sqrt{2(136)-16} + 2 =$$

$$\frac{5}{8} \sqrt{256} + 2 =$$

$$\frac{5}{8} (16) + 2 = 10 + 2 = 12 \checkmark \checkmark$$

# Entry Slip Solutions

$$\frac{3}{8}\sqrt{5x-15} + 2 = 29$$

$$\begin{array}{r} \text{Step ①} \quad \frac{3}{8}\sqrt{5x-15} + 2 = 29 \\ \phantom{\text{Step ①} \quad} \quad \quad \quad -2 \quad \quad -2 \\ \hline \phantom{\text{Step ①} \quad} \frac{3}{8}\sqrt{5x-15} = 27 \end{array}$$

$$\begin{array}{r} \text{Step ②} \quad \frac{8}{3} \left( \frac{3}{8}\sqrt{5x-15} \right) = \frac{8}{3}(27) \\ \phantom{\text{Step ②} \quad} \sqrt{5x-15} = 72 \end{array}$$

$$\begin{array}{r} \text{Step ③} \quad (\sqrt{5x-15})^2 = 72^2 \\ \phantom{\text{Step ③} \quad} 5x-15 = 5184 \end{array}$$

$$\begin{array}{r} \text{Step ④} \quad 5x-15 = 5184 \\ \phantom{\text{Step ④} \quad} \quad \quad +15 \quad \quad +15 \\ \phantom{\text{Step ④} \quad} 5x = 5199 \end{array}$$

$$\begin{array}{r} \text{Step ⑤} \quad \frac{5x}{5} = \frac{5199}{5} \end{array}$$

$$x = 1039.8$$

$$\text{Double check } \frac{3}{8}\sqrt{5(1039.8)-15} + 2$$

$$\frac{3}{8}\sqrt{5184} + 2$$

$$\frac{3}{8}(72) + 2$$

$$27 + 2 = 29$$

# Entry Slip Solutions

$$\frac{3}{8}\sqrt{2x-16} + 2 = 14$$

$$\begin{array}{r} \text{Step ①} \quad \frac{3}{8}\sqrt{2x-16} + 2 = 14 \\ \qquad \qquad \qquad \underline{-2 \quad -2} \\ \qquad \qquad \qquad \frac{3}{8}\sqrt{2x-16} = 12 \end{array}$$

$$\begin{array}{r} \text{Step ②} \quad \frac{8}{3}\left(\frac{3}{8}\sqrt{2x-16}\right) = \frac{8}{3}(12) \\ \qquad \qquad \qquad \sqrt{2x-16} = 32 \end{array}$$

$$\begin{array}{r} \text{Step ③} \quad (\sqrt{2x-16})^2 = 32^2 \\ \qquad \qquad \qquad 2x-16 = 1024 \end{array}$$

$$\begin{array}{r} \text{Step ④} \quad 2x-16 = 1024 \\ \qquad \qquad \qquad \underline{+16 \quad +16} \\ \qquad \qquad \qquad 2x = 1040 \end{array}$$

$$\begin{array}{r} \text{Step ⑤} \quad \frac{2x}{2} = \frac{1040}{2} \\ \qquad \qquad \qquad \boxed{x = 520} \end{array}$$

$$\begin{array}{r} \text{Double check} \quad \frac{3}{8}\sqrt{2(520)-16} + 2 \\ \qquad \qquad \qquad \frac{3}{8}\sqrt{1024} + 2 \\ \qquad \qquad \qquad \frac{3}{8}(32) + 2 \\ \qquad \qquad \qquad 12 + 2 = 14 \end{array}$$

# Entry Slip Solutions

$$\frac{3}{5} \log_5 (4x-18) - 1 = 5$$

$$\text{Step ①} \quad \frac{3}{5} \log_5 (4x-18) - 1 = 5$$

$$\frac{3}{5} \log_5 (4x-18) = 6$$

Step ②

$$\frac{5}{3} \left( \frac{3}{5} \log_5 (4x-18) \right) = 6 \left( \frac{5}{3} \right)$$
$$\log_5 (4x-18) = 10$$

Step ③

$$5 \log_5 (4x-18) = 5^{10}$$
$$4x-18 = 5^{10}$$

Step ④

$$4x-18 = 5^{10}$$
$$\frac{4x-18}{+18} = \frac{5^{10}}{+18}$$
$$4x = 18 + 5^{10}$$

Step ⑤

$$\frac{4x}{4} = \frac{18 + 5^{10}}{4}$$

$$x = \frac{18 + 5^{10}}{4} = \frac{9}{2} + 4 \cdot 5^{10}$$
$$x = 2441910.75$$

Double check

$$\frac{3}{5} \log_5 \left( 4 \left( \frac{18 + 5^{10}}{4} \right) - 18 \right) - 1$$

$$\frac{3}{5} \log_5 (18 + 5^{10} - 18) - 1$$

$$\frac{3}{5} \log_5 (5^{10}) - 1$$
$$\frac{3}{5} (10) - 1$$
$$6 - 1 = 5$$

# Entry Slip Solutions

$$\frac{5}{2} \log_5(5x-25) - 1 = 9$$

Step 1

$$\frac{5}{2} \log_5(5x-25) - 1 = 9$$
$$\begin{array}{r} +1 \quad +1 \\ \hline \frac{5}{2} \log_5(5x-25) = 10 \end{array}$$

Step 2

$$\frac{2}{5} \left( \frac{5}{2} \log_5(5x-25) \right) = 10 \left( \frac{2}{5} \right)$$
$$\log_5(5x-25) = 4$$

Step 3

$$5 \log_5(5x-25) = 4 \cdot 5$$
$$5x-25 = 5^4$$

Step 4

$$5x-25 = 5^4$$
$$\begin{array}{r} +25 \quad +25 \\ \hline 5x = 25 + 5^4 \end{array}$$

Step 5

$$\frac{5x}{5} = \frac{25 + 5^4}{5}$$

Double Check

$$x = \frac{25 + 5^4}{5} = \frac{625}{5} = 125$$

$$\frac{5}{2} \log_5(5(125) - 25) - 1$$

$$\frac{5}{2} \log_5(625) - 1$$

$$\frac{5}{2} (4) - 1$$

$$10 - 1 = 9$$

# Entry Slip Solution - 5

$$\frac{5}{3} \log_3(4x-12) - 1 = 14$$

Step ①  $\frac{5}{3} \log_3(4x-12) - 1 = 14$

$$\frac{5}{3} \log_3(4x-12) = 15$$

Step ②  $\frac{3}{5} \left( \frac{5}{3} \log_3(4x-12) \right) = \frac{3}{5} (15)$

$$\log_3(4x-12) = 9$$

Step ③  $3 \log_3(4x-12) = 3^9$

$$4x-12 = 3^9$$

Step ④  $4x-12 = 3^9$

$$4x = 12 + 3^9$$

Step ⑤  $\frac{4x}{4} = \frac{12 + 3^9}{4}$

Double Check

$$\frac{5}{3} \log_3 \left( 4 \left( \frac{12 + 3^9}{4} \right) - 12 \right) - 1$$

$$\frac{5}{3} \log_3 (12 + 3^9 - 12) - 1$$

$$\frac{5}{3} \log_3 (3^9) - 1$$

$$\frac{5}{3} (9) - 1$$

$$15 - 1 = 14$$

$$X = \frac{12 + 3^9}{4}$$

$$X = 3 + \frac{1}{4} \cdot 3^9$$

$$X = \frac{19695}{4} = 4923.75$$

# Entry Slip Solutions

$$\frac{9}{2}(2^{7x+14}) - 7 = 11$$

Step ①  $\frac{9}{2}(2^{7x+14}) - 7 = 11$

$$\frac{9}{2}(2^{7x+14}) = 18$$

Step ②  $2/9 \left( \frac{9}{2}(2^{7x+14}) \right) = 18(2/9)$

$$2^{7x+14} = 4$$

Step ③  $\log_2 2^{7x+14} = \log_2 4$

$$7x+14 = \log_2 4$$

Step ④  $7x+14-14 = -14 + \log_2 4$

$$7x = -14 + \log_2 4$$

Step ⑤  $\frac{7x}{7} = \frac{-14 + \log_2 4}{7}$

Double Check:

$$\frac{9}{2}(2^{7(-12/7)+14}) - 7$$

$$\frac{9}{2}(2^{-12+14}) - 7$$

$$\frac{9}{2}(2^2) - 7$$

$$\frac{9}{2}(4) - 7$$

$$18 - 7 = 11$$

$$X = \frac{-14 + \log_2 4}{7}$$

$$X = -2 + \frac{1}{7} \log_2 4$$

$$X = -2 + \frac{2}{7} = -\frac{12}{7} = X$$

# Entry Slip Solutions

$$\frac{6}{5}(5^{4x-28}) - 7 = 23$$

Step ①  $\frac{6}{5}(5^{4x-28}) - 7 = 23$

$$\begin{array}{r} +7 \quad +7 \\ \hline \frac{6}{5}(5^{4x-28}) = 30 \end{array}$$

Step ②  $\frac{5}{6}(\frac{6}{5}(5^{4x-28})) = (30)\frac{5}{6}$

$$5^{4x-28} = 25$$

Step ③  $\log_5 5^{4x-28} = \log_5 25$

$$4x - 28 = \log_5 25$$

Step ④  $4x - 28 = \log_5 25$

$$\begin{array}{r} +28 \quad +28 \\ \hline 4x = 28 + \log_5 25 \end{array}$$

Step ⑤  $\frac{4x}{4} = \frac{28 + \log_5 25}{4}$

Double check

$$\frac{6}{5}(5^{4(7.5)-28}) - 7$$

$$\frac{6}{5}(5^{30-28}) - 7$$

$$\frac{6}{5}(5^2) - 7$$

$$\frac{6}{5}(25) - 7$$

$$30 - 7 = 23$$

$$x = \frac{28 + \log_5 25}{4}$$

$$x = 7 + \frac{1}{4} \log_5 25$$

$$x = 7 + \frac{1}{4}(2) = 7.5$$



# Entry Slip Solutions

$$\frac{7}{3}(3^{2x-16}) - 7 = 14$$

Step ①  $\frac{7}{3}(3^{2x-16}) - 7 = 14$

$$\frac{7}{3}(3^{2x-16}) = 21$$

Step ②  $\frac{3}{7}(\frac{7}{3}(3^{2x-16})) = 21(\frac{3}{7})$

$$3^{2x-16} = 9$$

Step ③  $\log_3 3^{2x-16} = \log_3 9$

$$2x-16 = \log_3 9$$

Step ④  $2x-16 = \log_3 9$

$$2x = 16 + \log_3 9$$

Step ⑤  $\frac{2x}{2} = \frac{16 + \log_3 9}{2}$

Double Check

$$\begin{aligned}\frac{7}{3}(3^{2(9)-16}) - 7 &= 14 \\ \frac{7}{3}(3^{18-16}) - 7 &= 14 \\ \frac{7}{3}(3^2) - 7 &= 14 \\ \frac{7}{3}(9) - 7 &= 14 \\ 21 - 7 &= 14\end{aligned}$$

$$\begin{aligned}x &= \frac{16 + \log_3 9}{2} \\ x &= 8 + \frac{1}{2} \log_3 9 \\ x &= 8 + 1 = 9\end{aligned}$$