

EXTEND

Problem 1

- Identify the error in solving the absolute value equation.
- Correct the error. Show your steps.
- Explain how one might have made that error.
- Justify the correct answer and steps.

$$|2x - 1| = 9$$

$$\begin{array}{r} 2x - 1 = 9 \\ +1 \quad +1 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{10}{2}$$

$$x = 5$$

$$\begin{array}{r} 2x - 1 = -9 \\ +1 \quad +1 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{0}{2}$$

$$x = 4$$

Problem 2

- Identify the error in solving the absolute value equation.
- Correct the error. Show your steps.
- Explain how one might have made that error.
- Justify the correct answer and steps.

$$\frac{-3|x-4| - 4 = 3}{+4 \quad +4}$$

$$\frac{-3|x-4|}{-3} = \frac{7}{-3}$$

$$|x-4| = -\frac{7}{3}$$

$$\frac{x-4 = -\frac{7}{3}}{+4 \quad +4}$$

$$x = \frac{5}{3}$$

or

$$\frac{x-4 = \frac{7}{3}}{+4 \quad +4}$$

$$x = \frac{19}{3}$$

Problem 3

- Identify the error in solving the absolute value equation.
- Correct the error. Show your steps.
- Explain how one might have made that error.
- Justify the correct answer and steps.

$$|2x - 3| + 4 = 7$$

$$\begin{array}{r} |2x - 3| + 4 = 7 \\ +3 \qquad +3 \\ \hline \end{array}$$

$$\begin{array}{r} 2x + 4 = 10 \\ -4 \quad -4 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{6}{2}$$

$$x = 3$$

$$\begin{array}{r} |2x - 3| + 4 = -7 \\ +3 \qquad +3 \\ \hline \end{array}$$

$$\begin{array}{r} 2x + 4 = -4 \\ -4 \quad -4 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{-8}{2}$$

$$\text{or} \quad x = -4$$