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 the steps you took to reach that answer.

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

$$2x-1=9 \qquad\qquad 2x-1=-9$$
$$+1\ \ +1 \qquad\qquad +1\ \ +1$$

$$\frac{2x}{2}=\frac{10}{2} \qquad\qquad \frac{2x}{2}=\frac{8}{2}$$

$$x=5 \quad \text{or} \quad x=4$$

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 the steps you took to reach that answer.

$$-3|x-4|-4=3$$
$$+4 \quad +4$$

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

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

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

$$x=\frac{5}{3} \quad \text{or} \quad x=\frac{19}{3}$$

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 the steps you took to reach that answer.

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

$$|2x-3|+4=7 \qquad |2x-3|+4=-7$$
$$+3 \quad +3 \qquad +3 \quad +3$$

$$2x+4=10 \qquad 2x+4=-4$$
$$-4 \quad -4 \qquad -4 \quad -4$$

$$\frac{2x}{2}=\frac{6}{2} \qquad \frac{2x}{2}=\frac{-8}{2}$$

$$x=3 \quad \text{or} \quad x=-4$$