Now you try: Solve the following equations. Determine whether each has one solution or no solutions.

$3(x-1) = 2x+9$

$3x-3 = 2x+9$

$-2x \quad -2x$

$x-3 = 9$

$+3 \quad +3$

$x = 12$

one solution

$-2(x+1) = -2x+5$

$-2x-2 = -2x+5$

$+2x \quad +2x$

$-2 = 5$ ← not true!

no solution

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

$6x+2 = 3x-7$

$-3x \quad -3x$

$3x+2 = -7$

$-2 \quad -2$

$\frac{3x}{3} = \frac{-9}{3}$

$x = -3$

one solution

$-3 + 10 = 7$

$7 + 2 = 9$

$2(x+2)+3x = 2(x+1)+1$

$2x+4+3x = 2x+2+1$

$5x+4 = 2x+3$

$-2x \quad -2x$

$3x+4 = 3$

$-4 \quad -4$

$\frac{3x}{3} = \frac{-1}{3}$

$x = -\frac{1}{3}$

one solution

$4(x-1) = \frac{1}{2}(x-8)$

$4x-4 = \frac{1}{2}x-4$

$-\frac{1}{2}x \quad -\frac{1}{2}x$

$3.5x-4 = -4$

$+4 \quad +4$

$\frac{3.5x}{3.5} = \frac{0}{3.5}$

$x = 0$

one solution

$\frac{1}{2} \cdot \frac{-8}{1} = \frac{-8}{2} = -4$

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

$3x+7 = 3x-7$

$-3x \quad -3x$

$7 = -7$ ← not true!

no solution

$3x - x + 4 = 4(2x-1)$

$3x-x+4 = 8x-4$

$2x+4 = 8x-4$

$-2x \quad -2x$

$4 = 6x-4$

$+4 \quad +4$

$\frac{8}{6} = \frac{6x}{6}$

$\frac{8}{6} = x$

$\frac{8}{6} \div \frac{2}{2} = \frac{4}{3}$

$\frac{4}{3} = x$

one solution

$4(2x+1) = 5x+3x+9$

$8x+4 = 8x+9$

$-8x \quad -8x$

$4 = 9$ ← not true!

no solution

$10 + x = 5(\frac{1}{5}x - 2)$

$\frac{5}{1} \cdot \frac{1}{5} = \frac{5}{5} = 1$

$10+x = x-10$

$-x \quad -x$

$10 = -10$ ← not true!

no solution