

121 - § 1.1 #s 25, 43, 76

#s 13-26 SOLVE & CHECK

(25) $\frac{3}{2}x + \frac{1}{3} = \frac{1}{4}x - \frac{1}{6}$

LCD = 2 · 3 · 2 = 12

$12 \left[\frac{3}{2}x + \frac{1}{3} \right] = 12 \left[\frac{1}{4}x - \frac{1}{6} \right]$

$12 \left(\frac{3}{2}x \right) + 12 \left(\frac{1}{3} \right) = 12 \left(\frac{1}{4}x \right) - 12 \left(\frac{1}{6} \right)$

$18x + 4 = 3x - 2$

$15x = -6$

$x = -\frac{6}{15}$

Check:

$\frac{3}{2} \left(-\frac{6}{15} \right) + \frac{1}{3} \stackrel{?}{=} \frac{1}{4} \left(-\frac{6}{15} \right) - \frac{1}{6}$

$\frac{1}{1} \left(-\frac{3}{5} \right) + \frac{1}{3} \stackrel{?}{=} \frac{1}{2} \left(-\frac{3}{15} \right) - \frac{1}{6}$

$-\frac{3}{5} + \frac{1}{3} \stackrel{?}{=} -\frac{3}{30} - \frac{1}{6}$

$-\frac{9+5}{15} \stackrel{?}{=} -\frac{3-5}{30}$

$-\frac{4}{15} \stackrel{?}{=} -\frac{8}{30} = -\frac{4}{15} \checkmark$

(43) $\frac{1}{x-3} - \frac{1}{x+3} = \frac{6}{x^2-9}$

LCD = (x-3)(x+3)

$(x-3)(x+3) \left(\frac{1}{x-3} \right) - (x-3)(x+3) \left(\frac{1}{x+3} \right) = (x-3)(x+3) \left(\frac{6}{(x-3)(x+3)} \right)$

$x+3 - (x-3) = 6$

$2x+6=6$

$2x=0$

$x=0$

$\frac{1}{0-3} - \frac{1}{0+3} = \frac{6}{0^2-9} \quad ?$

$-\frac{1}{3} - \frac{1}{3} = -\frac{6}{9} \checkmark$

$-\frac{2}{3} = -\frac{2}{3} \checkmark$

(76) $6 - 4|x+3| = -2$

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

$4|x+3| = 8$

$|x+3| = 2$

$x+3=2$ OR $x+3=-2$

$x = -1$ OR $x = -5$
 $x \in \{-5, -1\}$