Equations with Fractions and Brackets : Answers

1) $\frac{(x-5)}{3} = \frac{7}{1}$

LCM = 3

$\frac{(x-5)}{3} = \frac{21}{3}$

$x - 5 = 21$

$x = 21 + 5$

$x = 26$

2) $\frac{(x+2)}{2} = \frac{5}{3}$

LCM = 6

$\frac{3(x+2)}{6} = \frac{10}{6}$

$3(x+2) = 10$

$3x + 6 = 10$

$3x = 10 - 6$

$3x = 4$

$x = 4/3$

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

3) $\frac{5(2x+1)}{3} = \frac{3(3x-5)}{4}$

LCM = 12

$\frac{20(2x+1)}{12} = \frac{9(3x-5)}{12}$

$20(2x+1) = 9(3x-5)$

$40x + 20 = 27x - 45$

$40x - 27x = -45 - 20$

$13x = -65$

$x = \frac{-65}{13}$

$x = -5$

4) $\frac{(x+1)}{5} + \frac{3}{1} = \frac{2}{3}$

LCM = 15

$\frac{3(x+1)}{15} + \frac{45}{15} = \frac{10}{15}$

$3(x+1) + 45 = 10$

$3x + 3 = 10 - 45$

$3x + 3 = -35$

$3x = -35 - 3$

$3x = -38$

$x = \frac{-38}{3}$

$x = -12\frac{2}{3}$

5) $\frac{6}{7} - \frac{2(x+3)}{3} = \frac{5}{21}$

LCM = 21

$\frac{18}{21} - \frac{14(x+3)}{21} = \frac{5}{21}$

$18 - 14(x+3) = 5$

$18 - 14x - 42 = 5$

$18 - 42 - 5 = 14x$

$-29 = 14x$

$\frac{-29}{14} = x$

$-2\frac{1}{14} = x$

6) $\frac{(x+2)}{3} + \frac{2}{5} = \frac{3x}{1}$

LCM = 15

$\frac{5(x+2)}{15} + \frac{6}{15} = \frac{45x}{15}$

$5(x+2) + 6 = 45x$

$5x + 10 + 6 = 45x$

$10 + 6 = 45x - 5x$

$16 = 40x$

$\frac{16}{40} = x$

$\frac{2}{5} = x$

7) $\frac{(x-7)}{2} - \frac{5}{1} = \frac{(x+1)}{3}$ LCM = 6

$\frac{3(x-7)}{6} - \frac{30}{6} = \frac{2(x+1)}{6}$

$3(x-7) - 30 = 2(x+1)$

$3x - 21 - 30 = 2x + 2$

$3x - 2x = 2 + 21 + 30$

$x = 53$

8) $\frac{(3x+5)}{5} = \frac{(2x-3)}{2} - \frac{4}{1}$

LCM = 10

$\frac{2(3x+5)}{10} = \frac{5(2x-3)}{10} - \frac{40}{10}$

$2(3x+5) = 5(2x-3) - 40$

$6x+10 = 10x-15-40$

$6x+10 = 10x-55$

$10+55 = 10x-6x$

$65 = 4x$

$\frac{65}{4} = x$

$16\frac{1}{4} = x$

9) $\frac{2(3x-4)}{3} + \frac{1}{1} = \frac{7(2x+3)}{9}$

LCM = 9

$\frac{6(3x-4)}{9} + \frac{9}{9} = \frac{7(2x+3)}{9}$

$6(3x-4) + 9 = 7(2x+3)$

$18x-24+9 = 14x+21$

$18x-15 = 14x+21$

$18x-14x = 21+15$

$4x = 36$

$x = \frac{36}{4}$

$x = 9$

10) $\frac{4(5-2x)}{5} - \frac{3x}{1} = \frac{(x-7)}{8}$

LCM = 40

$\frac{32(5-2x)}{40} - \frac{120x}{40} = \frac{5(x-7)}{40}$

$32(5-2x) - 120x = 5(x-7)$

$160-64x-120x = 5x-35$

$160-184x = 5x-35$

$160+35 = 5x+184x$

$195 = 189x$

$\frac{195}{189} = x$

$1\frac{6}{189} = x$

11) $\frac{2}{3} - \frac{3(6+7x)}{4} = \frac{5x}{1} + \frac{(2-x)}{5}$

LCM = 60 $(3 \times 4 \times 5)$

$$\frac{40}{60} - \frac{45(6+7x)}{60} = \frac{300x}{60} + \frac{12(2-x)}{60}$$

$$40 - 45(6+7x) = 300x + 12(2-x)$$
$$40 - 270 - 315x = 300x + 24 - 12x$$
$$-230 - 315x = 288x + 24$$
$$-230 - 24 = 288x + 315x$$
$$-254 = 603x$$
$$\frac{-254}{603} = x$$

12) $\frac{5}{1} + \frac{2x}{1} = \frac{(4x-7)}{7} - \frac{(3-2x)}{4}$

LCM = 28

$$\frac{140}{28} + \frac{56x}{28} = \frac{4(4x-7)}{28} - \frac{7(3-2x)}{28}$$
$$140 + 56x = 4(4x-7) - 7(3-2x)$$
$$140 + 56x = 16x - 28 - 21 + 14x$$

$$140 + 56x = 30x - 49$$
$$56x - 30x = -49 - 140$$
$$26x = -189$$
$$x = -\frac{189}{26}$$
$$x = -7\frac{7}{26}$$