8.6B HW

Wednesday, April 09, 2014
9:31 AM

(11) $x = 6$ (12) no solution (13) $x = -5$

(14) $x = 4$ (15) $x = -1$ (16) $x = -2$

(17) $x = -3, 6$ (18) no solution

**Solve the equation by using the LCD. Check for extraneous solutions.**

**11.** $\frac{x}{x}\frac{3}{2} + \frac{1}{x}\frac{2}{2} = 1\cdot\frac{x}{x} + \frac{4}{x}$

$\frac{3x}{2x} + \frac{2}{2x} = \frac{x}{x} + \frac{4}{x}$

$\frac{3x+2}{2x} = \frac{x+4}{x}$

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

$3x^2 + 2x = 2x^2 + 8x$

$x^2 - 6x = 0$

$x(x-6) = 0$

$x = 0 \quad x-6=0$

$x = 6$

**12.** $\frac{-x+1}{x-1} + 2\frac{x-1}{x-1}\frac{1}{x}$

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

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

$\frac{(x-1)}{(x-1)} = \frac{1}{x}$

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

$x = x$

no solution

**13.** $\frac{x}{x}1 + \frac{6}{x} = \frac{2x-4}{x} - 3\frac{x}{x}$

$\frac{x}{x} + \frac{6}{x} = \frac{2x-4}{x} - \frac{3x}{x}$

$\frac{x+6}{x} = \frac{2x-4-3x}{x}$

$\frac{x+6}{x} = \frac{-x-4}{x}$

$x(x+6) = x(-x-4)$

$x^2 + 6x = -x^2 - 4x$

$2x^2 + 10x = 0$

$2x(x+5) = 0$

$2x = 0 \quad x+5=0$

$x = 0 \quad x = -5$

**14.** $\frac{6}{x-3} - 4\frac{x-3}{x-3}\frac{2}{x-3}$

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

$6 - 4x + 12 = 2$

$-4x + 18 = 2$

$-4x = -16$

$x = 4$

**15.** $\frac{x+3}{x+3}\frac{4}{x-3} + \frac{2}{x+3}\frac{x-3}{x-3}\frac{2x+2}{x^2-9}$

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

$\frac{4x+12+2x-6}{x^2-9} = \frac{2x+2}{x^2-9}$

$6x + 6 = 2x + 2$

$4x = -4$

$x = -1$

**16.** $\frac{x^2}{3x-1} + 2\frac{3x-1}{3x-1}\frac{2(x-3)}{3x-1}$

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

$x^2 + 6x - 2 = 2x - 6$

$x^2 + 4x + 4 = 0$

$(x+2)(x+2) = 0$

$x + 2 = 0$

$x = -2$

**17.** $\frac{2x+1}{2x+1}\frac{x}{2x-1} - \frac{2}{2x+1}\frac{2x-1}{2x-1}\frac{x^2+20}{4x^2-1}$

$\frac{x(2x+1) - 2(2x-1)}{(2x+1)(2x-1)} = \frac{x^2+20}{4x^2-1}$

$\frac{2x^2 + x - 4x + 2}{4x^2-1} = \frac{x^2+20}{4x^2-1}$

**18.** $\frac{x+6}{x+6}x + \frac{5}{x+6} = \frac{6x-1}{x+6}$

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

$$\frac{2x^2+x-4x+2}{4x^2-1} = \frac{x^2+20}{4x^2-1}$$

$$2x^2-3x+2 = x^2+20$$

$$x^2-3x-18=0$$

$$(x-6)(x+3)=0$$

$$x-6=0 \quad x+3=0$$

$$x=6 \quad x=-3$$

$$\frac{(x+6)}{} \quad x+6$$

$$x^2+6x+5 = 6x-1$$

$$x^2+6=0$$

no solution