Written assignments to hand in.

Section P8 28, 46
Due Monday 9/18

Section 6.1 24, 42
Due Wednesday 9/20

Discussion Problems From the department syllabus
These are not to hand in.

Section P8, 6.1

WebAssign

Sections P7 + P8
Due Monday 9/8, 9PM.

Section P8

(12) $\dfrac{x^{\frac{3}{2}}}{x-6} = x-8$

are the following solutions?

$x=4$

$\dfrac{4^{\frac{3}{2}}}{4-2} = 4-8$

$\dfrac{8}{2} = -4$

$4 \neq -4$

$x=4$ is not a solution

$x=8$

$\dfrac{8^{\frac{3}{2}}}{8-6} = 8-8$

$\dfrac{8^{\frac{3}{2}}}{2} \neq 0$

$x=8$ is not a solution.

(15) $5x-6=14$ Solve for x

$+6 \quad +6$

$\frac{1}{5}\ 5x=20\ \frac{1}{5}$

$x=4$ → Check

$5(4)-6=14$

$20-6=14$

$14=14$ ✓

(18) $4x-95=1$

$+95 \quad +95$

$\frac{1}{4}\ 4x=96\ \frac{1}{4}$

$x=24$

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

$-\frac{x}{3} \quad -\frac{x}{3}$

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

$-1=\frac{4}{3}x+7$

$-7 \quad -7$

$-8=\frac{4}{3}x$

$\frac{3}{4}(-8)=\frac{3}{4}\left(\frac{4}{3}x\right)$

$-6=x$

(28) $\frac{3}{5}x-1=\frac{3}{10}x+3$

$-\frac{3}{10}x \quad -\frac{3}{10}x$

$\frac{42}{105}x-\frac{3}{10}x-1=3$

$\frac{1}{10}x-1=3$

$+1 \quad +1$

$\frac{10}{1}\ \frac{1}{10}x=4\ \frac{10}{1}$

$x=40$

(30) $5(x+3)+9 = -2(x-2)-1$

$5x+15+9 = -2x+4-1$

$5x+24 = -2x+3$

$+2x \qquad +2x$

$7x+24 = 3$

$-24 \quad -24$

$\frac{1}{7}\ 7x = -21\ \frac{1}{7}$

$\boxed{x=-3}$

(36) $6\left(3x - \frac{5x}{2} = \frac{x+1}{3} - \frac{1}{6}\right)$

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

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

$18x - 15x = 2(x+1) - 1$

$3x = 2x+2-1$

$3x = 2x+1$

$2x \quad -2$

$\boxed{x=1}$

Check

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

$3 - \frac{5}{2} = \frac{2}{3} - \frac{1}{6}$

$\frac{1}{2} = \frac{4}{6} - \frac{1}{6}$

$\frac{1}{2} = \frac{1}{2}$ ✓

(39) $\frac{2}{t+6} = \frac{3}{t-1}$ Least common denominator $(t+6)(t-1)$

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

$2(t-1) = 3(t+6)$

$2t-2 = 3t+18$

$+2 \quad +2$

$2t = 3t+20$

$-3t \quad -3t$

$-t = 20$

$\boxed{t=-20}$

(99) $\frac{1}{2} - \frac{1}{2z} - \frac{1}{5z} = \frac{10}{z+1}$ Least common denominator $10z(z+1)$

$10z(z+1)\left(\frac{1}{2} - \frac{1}{2z} - \frac{1}{5z} = \frac{10}{z+1}\right)$

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

$10(z+1) - 5(z+1) - 2(z+1) = 100z$

$$10z+10-5z-5-2z-2=100z$$

$$3z+3=100z$$
$$-3z \quad -3z$$

$$\frac{1}{97}3=97z\frac{1}{97}$$

$$\boxed{\frac{3}{97}=z}$$

(52) $\frac{1}{x+3}+\frac{5}{x^2-9}=\frac{2}{x-3}$ factor denominators

$\frac{1}{x+3}+\frac{5}{(x-3)(x+3)}=\frac{2}{x-3}$ least common denominator $(x-3)(x+3)$

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

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

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

$$x+2=2x+6$$
$$-2 \quad -2$$

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

$$-x=4$$

$$\boxed{x=-4}$$