Math3 (814013) – Spring 2007

Worksheet 18

Question (1) : Solve the following equations by using a suitable substitution:

1) $\left(m^2-2m\right)^2+2\left(m^2-2m\right)=15$

2) $x^4+3x^2+4=0$

3) $3x^{\frac{-2}{5}}-x^{\frac{-1}{5}}-2=0$

4) $(x-1)^4-2(x-1)^2+1=0$

5) $3x^{-4}+2x^{-2}+7=0$

6) $\frac{2}{z}-\frac{3}{\sqrt{z}}+2=0$

7) $3y^{\frac{2}{3}}+2y^{\frac{1}{3}}-8=0$

8) $x^4-16=0$

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

10) $2\left(\frac{1}{1+\sqrt{x}}\right)^2=3\left(\frac{1}{1+\sqrt{x}}\right)+2$

Question (2) : Solve the following equations:

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

2) $\frac{1}{y+1}+\frac{2}{y-2}=\frac{1}{y^2-y-2}$

3) $\sqrt{1+2x}-\sqrt{2-x}=\sqrt{3+x}$

4) $\sqrt{x-2}+\sqrt{2+x}=\sqrt{2}$

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

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

7) $\dfrac{20-x}{x}=x$

8) $\dfrac{7}{x-1}-\dfrac{2}{\sqrt{x-1}}+\dfrac{1}{7}=0$

9) $\sqrt{2(1-x)^2-3}-1=2x$

10) $\dfrac{3-x}{x-\dfrac{9}{x}}=\dfrac{x}{x+1}$

11) $\dfrac{11}{4-x^2}+\dfrac{3+x}{x-2}=\dfrac{2x-3}{x+2}$

12) $\sqrt[3]{x^2+2x}=2$

13) $\sqrt{3x+2}-\sqrt{x-6}=0$