Name: _____

Equations Reducible to Quadratics

1) Solve each equation. Check if the solutions are accepted or not.

1) $x^4 - 3x^2 + 2 = 0$
2) $x^{-6} - 3x^{-3} + 2 = 0$
3) $x^{10} - 3x^5 + 2 = 0$
4) $x^4 + 10x^2 + 9 = 0$
5) $9x^4 - 6x^2 + 1 = 0$
6) $10x^{10} + 23x^5 + 6 = 0$
7) $4x^6 + 4x^3 - 35 = 0$
8) $x^6 - 4x^3 - 21 = 0$
9) $25x^6 + 20x^3 + 4 = 0$
10) $x^4 - 3x^2 - 4 = 0$
11) $6x^{-2} + x^{-1} = 2$
12) $a^3 - 8a^{3/2} + 7 = 0$
13) $x^{1/2} - 3x^{1/4} + 2 = 0$
14) $x^{2/5} - 3x^{1/5} + 2 = 0$
15) $x^{2/7} - 3x^{1/7} - 18 = 0$
16) $x^{1/3} + 11x^{1/6} + 10 = 0$
17) $15x^{1/2} - 8x^{1/4} + 1 = 0$

2) Solve each equation. Check if the solutions are accepted

1) $10x + 23\sqrt{x} + 2 = 0$
2) $2x + 3\sqrt{x} - 2 = 0$
3) $-3x + 4\sqrt{x} + 5 = 0$
4) $3x + \sqrt{x} - 1 = 0$
5) $x - \sqrt{x} + 2 = 0$
6) $\sqrt{x}\left(3\sqrt{x} + 2\right) - 3 = 0$
7) $\sqrt{x}\left(-\sqrt{x} - 3\right) + 5 = 0$
8) $-\sqrt{x}\left(\sqrt{x} - 9\right) + 2 = 0$
9) $-2\sqrt{x}\left(\sqrt{x} - 5\right) + 4 = 0$
10) $\sqrt{2x+1}\left(3\sqrt{2x+1} + 2\right) - 3 = 0$

3) Solve each equation. Check if the solutions are accepted

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

2) $\frac{12}{x^2}+\frac{1}{x}=1$

3) $2+\frac{7}{x}=\frac{4}{x^2}$

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

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

6) $\frac{7}{x-4}+\frac{2}{x-5}=\frac{10}{x^2-9x+20}$

7) $\frac{3}{x+2}-\frac{4}{x-2}=\frac{8}{x^2-4}$

8) $\frac{3}{x-4}-\frac{6}{x+4}=\frac{24}{x^2-16}$

9) $\frac{4}{x+4}+\frac{1}{x+1}=1$

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

11) $\frac{7}{x+5}-\frac{8}{x+8}=1$

12) $\frac{5}{x+7}-\frac{6}{x+9}=1$

13) $\frac{x-4}{x+5}-\frac{2}{x+10}=-1$

14) $\frac{x-2}{x+7}-\frac{1}{x+3}=-1$

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

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

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

18) $\frac{5}{2x-3}-\frac{2}{x}=\frac{x}{2x-3}$

19) $\frac{x^2}{8}-4=\frac{x}{2}$

20) $\frac{x}{x+2}+x=\frac{5x+8}{x+2}$

21) $\frac{x+10}{x^2-2}=\frac{4}{x}$

22) $\frac{5}{x-5}=\frac{x}{x-5}-1$

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

24) $\frac{6}{x-1}=\frac{4}{x-2}+\frac{2}{x+1}$

25) $\frac{x+1}{x-3}=4-\frac{12}{x^2-2x-3}$

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

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

28) $7-\frac{7x}{x+2}=\frac{3}{x+5}$

4) Solve each equation. Check if the solutions are accepted

1) $|x^2+3x|=4$

2) $|-x^2-4x|=8$

3) $|x^2+3x|=7$

4) $|x^2+2x|=12$

5) $|x^2+3x|=12$

6) $|x^2+x|=1$

7) $|x^2-9x|=11$

8) $|x^2+8x|=1$