Name _____ Date _____

Mr. Schlansky Algebra II

Equations and Systems Review Sheet

1. The solution set of the equation $\sqrt{2x-4} = x-2$ is

1) $\{-2,-4\}$
2) $\{2,4\}$
3) $\{4\}$
4) $\{\ \}$

2. What is the solution set of the equation $\frac{30}{x^2-9} + 1 = \frac{5}{x-3}$?

1) $\{2,3\}$
2) $\{2\}$
3) $\{3\}$
4) $\{\ \}$

3. The solutions to the equation $3x^2 - 4x + 2 = 2x - 3$ are

1) $\frac{2}{3} \pm \frac{\sqrt{2}}{3}i$
2) $1 \pm \frac{\sqrt{6}}{3}i$
3) $1 \pm \frac{\sqrt{12}}{3}$
4) $1 \pm 2\sqrt{6}i$

4. The roots of the equation $x^2 - 4x = -13$ are

1) $2 \pm 3i$
2) $2 \pm 6i$
3) $2 \pm \sqrt{17}$
4) $2 \pm \sqrt{13}$

5. Given i is the imaginary unit, $(2-yi)^2$ in simplest form is

1) $y^2 - 4yi + 4$
2) $-y^2 - 4yi + 4$
3) $-y^2 + 4$
4) $y^2 + 4$

6. The expression $6xi^3(-4xi + 5)$ is equivalent to

1) $2x - 5i$
2) $-24x^2 - 30xi$
3) $-24x^2 + 30x - i$
4) $26x - 24x^2i - 5i$

Solve the following equations algebraically

7. $3=-x+\sqrt{x+5}$

8. $x=2+\sqrt{x+4}$

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

10. $\frac{2}{x}-\frac{3x}{x+3}=\frac{x}{x+3}$

11. Solve for x and express your answer in simplest radical form: $x^2-6x=-12$

12. Solve for x and express your answer in simplest $a+bi$ form: $4x^2+2x=-1$

Solve the following in simplest *a+bi* or radical form

13. $x^4 - 6x^2 = 27$

14. $x^4 + 6x^2 = 40$

Express the following in simplest *a+bi* form

15. $(3k - 2i)^2$

16. $(4x - 3yi)^2$

17. $-2ai^{49} - 3bi^{27} + 3ai^{225}$

18. $6ki^{28} + 4pi^{31} - 8pi^{73}$

Spiral Review

To determine if $x - a$ is a factor:

Use remainder theorem and see if $p(a) = 0$. If the remainder is 0, it is a factor. If the remainder is not 0, it is not a factor.

19. Which binomial is *not* a factor of the expression $x^3 - 4x^2 - 25x + 28$?

1) $x+6$
2) $x-7$
3) $x-1$
4) $x+4$

20. Which binomial is a factor of the expression $x^4 + 4x^2 - 32$?

1) $x+8$
2) $x-8$
3) $x-1$
4) $x+2$