Name **Answers!**

DIRECTIONS: For #1-5, simplify and write your answers in the provided blanks.

1. $(1+\sqrt{7})(7-4\sqrt{7})$

$\mathbf{-21+3\sqrt{7}}$

2. $(\sqrt{17}+1)^2$

$\mathbf{18+2\sqrt{17}}$

3. $(\sqrt{5}+3\sqrt{7})(\sqrt{5}-3\sqrt{7})$

$\mathbf{-58}$

4. $\frac{1}{1-\sqrt{2}}$

$\mathbf{-1-\sqrt{2}}$

5. $\frac{5\sqrt{7}-2\sqrt{5}}{\sqrt{7}+\sqrt{5}}$

$\mathbf{\frac{45-7\sqrt{35}}{2}}$

DIRECTIONS: For #6-8, solve. If an equation has no real solutions, write "no real solution."

6. $\sqrt{5x-1}=7$

$\boldsymbol{x=10}$

7. $\sqrt{m+4}+m=2$

$\boldsymbol{m=0}$

8. $x\sqrt{7}=28$

$\boldsymbol{x=4\sqrt{7}}$

DIRECTIONS: For #9-17, simplify and write your answers in the provided blanks.

9. i^{30}

-1

10. $\sqrt{-48}$

$4i\sqrt{3}$

11. $\sqrt{-5} \cdot \sqrt{-15}$

$-5\sqrt{3}$

12. $(i\sqrt{3})^2$

-3

13. $\frac{\sqrt{10}}{3i\sqrt{2}}$

$-\frac{i\sqrt{5}}{3}$

14. $\frac{\sqrt{72}}{\sqrt{-18}}$

$-2i$

15. $4\sqrt{-3} - \sqrt{-75}$

$-i\sqrt{3}$

16. $i\sqrt{32} \cdot \sqrt{-2}$

-8

17. $\sqrt{-\frac{a}{2}} \cdot \sqrt{-\frac{18}{a}}$

-3

DIRECTIONS: For #18, solve.

18. $x^2 + 121 = 0$

$x = \pm 11i$

DIRECTIONS: For #19-24, simplify and write your answers in the provided blanks.

19. $(5 + 4i) + (2 - 9i)$

20. $(9 + 2i) - (2 - 8i)$

$\mathbf{7 - 5i}$

$\mathbf{7 + 10i}$

21. $(-5 + i)(2 + 3i)$

22. $(6 + i\sqrt{2})(6 - i\sqrt{2})$

$\mathbf{-13 - 13i}$

$\mathbf{38}$

23. $(9 - 6i)^2$

24. $\frac{10}{4+3i}$

$\mathbf{45 - 108i}$

$\mathbf{\frac{8}{5} - \frac{6}{5}i}$

DIRECTIONS: For #25, answer the question in its most simplified form.

25. What is the reciprocal of $5 - 3i$?

$\mathbf{\frac{5}{34} + \frac{3}{34}i}$