Show all work for credit.

Evaluate or simplify the following rational exponents.

1. $\sqrt{-49}$

2. $\sqrt{-32}$

3. $25^{\frac{1}{2}}$

4. $27^{\frac{1}{3}}$

5. $9^{\frac{3}{2}}$

6. $8^{-\frac{2}{3}}$

Use properties of exponents to write as positive powers.

7. $x^{\frac{2}{5}} \cdot x^{-\frac{3}{5}}$

8. $x^{\frac{1}{4}} \cdot x^{\frac{2}{3}}$

9. $\dfrac{x^{-4/5}}{x^{1/2}}$

10. $\left(x^{-2/7}\right)^{-1/4}$

Add or Sub the following complex numbers:

11. $(6 + i) + (-3 - 2i)$

12. $(3 - 5i) - (4 - 2i)$

Multiply or Divide the following:

13. $3i(7 - 5i)$

14. $(9 - 6i)(9 + 6i)$

15. $\dfrac{5}{2i}$

16. $\dfrac{1+4i}{3-i}$

Solve the following equations for x and write your answers in **set notation**.

17. $3x^2 - 12 = 9$

18. $6x^2 = -24$

19. $(x + 4)^2 = 25$

20. $(x - 2)^2 = -20$

21. $2\sqrt{x - 6} + 5 = 9$

22. $2\sqrt{x} = -10$

23. $\sqrt{4x + 6} = \sqrt{x + 9}$

24. $\sqrt{x} = x$

Solve for x by **completing the square** and write your answers in **set notation**.

25. $x^2 + 8x - 3 = 0$

Solve for x by using the **quadratic formula** and write your answers in **set notation**.

26. $3x^2 - 2x - 1 = 0$

Solve the following quadratic in form equations for x and write your answers in **set notation**.

27. $x^4 + 6x^2 + 8 = 0$

28. $x + \sqrt{x} - 12 = 0$

Answer Sheet

1		15	
2		16	
3		17	
4		18	
5		19	
6		20	
7		21	
8		22	
9		23	
10		24	
11		25	
12		26	
13		27	
14		28	