Show all work on separate paper.

1-3: List the elements in each set.
1. The set of natural numbers less than 5.
2. The set of whole numbers between 2 and 7.
3. The set of negative integers greater than -3.

4-5: State the property being demonstrated.
4. $(3+9)(7) = (3)(7) + (9)(7)$
5. $\frac{1}{2} + (-\frac{3}{2}) = 0$

6. Solve each inequality: $2x + 7 \leq 5 - 6x$
7. Express $5 < x$ in interval notation.

8. Solve for $x$: $12x - 31 = 7$
9. Solve for $x$: $13x - 61 < 9$

10. Simplify and express using only positive exponents: $\frac{3a^{-3}b^2}{2^{-1}c^3d^{-4}}$

11-12: Simplify
11. $3\sqrt{9x^2 + 2} + \sqrt{6}x^2 - 3\sqrt{x^2}$
12. $3\sqrt{a} + \sqrt{12}$

13. Maria has $8169 in ones, fives, and tens. She has twice as many one dollar bills as five dollar bills, and five more tens than fives. How many of each type does she have?

14-17: Factor completely.
14. $4x^3 - 4x^2 + 4x - 3$
15. $64 - 27b^3$
16. $ax^2 - 5ax - 3x + 15$
17. $(x+y)^2 - 9$

18-21: Simplify.
18. $\frac{x^3 - x}{x^3 - 2x^2 + x}$
19. $\frac{a^2 + 2ab + b^2}{a^2 - b^2}$
20. $\frac{a^2 + 3ab + 2b^2}{a^2 - 3ab + 2b^2}$
21. $\frac{4}{x^2} - \frac{1}{y^2}$
22. $\frac{2}{x} - y^{-1}$

23. $\frac{3x^2 + 3}{2x^2 - x - 1} + \frac{1}{2x + 1}$