128. *Factor completely Remember to look first for a common factor. Check by multiplying. If a polynomial is prime, state this*.

− *x*3 + *x*2 + 42*x*

*28. Factor completely. Remember to look first for a common factor and to check by multiplying. If a polynomial is prime, state this*.

25*x*2 + 10*x* + 1

8. *Solve using the principle of zero products*.

(5*t* − 8)(*t* − 1) = 0

1. **Complete the factorization.**

8x6 = 4x2( )
2. **Factor out the largest common factor.**

y8 - 16y5
3. **Factor out the largest common factor.**

5x(3x - 5) + 2(3x – 5)

1. **Factor by grouping, if possible. Show all work necessary.**

x3 + 3x2 + 2x + 6
2. **Factor completely. Show all work necessary.**

x2  - 5x – 24
3. **Factor completely. Show all work necessary.**

3x2 - 27x + 60
4. **Factor completely. Show all work necessary.**

7x2 + 58x – 45
5. **Factor completely. Show all work necessary.**

9x2 - 121
6. **Factor completely. Show all work necessary.**

x2 - 10x + 25
7. **Solve using the principle of zero products.**

(y + 17)(y + 5)(y - 3) = 0
8. **Solve by factoring and using the principle of zero products. Show all work necessary.**

5x2 - 66 = 4x2 + 5x
9. **Solve using the five-step problem-solving process. Show all steps necessary to arrive at your solution.**

The product of two consecutive positive integers is 109 more than their sum. Find the integers
10. **Solve using the five-step problem-solving process. Show all steps necessary to arrive at your solution.**

A 20-ft. ladder is leaning against a building. If the distance from the bottom of the ladder to the base of the building is 4 ft. less than the height on the wall where the ladder is resting, what is the length of this height on the wall?
11. **Factor out the largest common factor.
6x9z5 - 18x6z3 + 4x5z4 - 22x7z6**
12. **Factor by grouping, if possible. Show all work necessary.
4x2 - 3x + 20x – 15**
13. **Factor completely.
x2 + 11x – 26**
14. **Factor completely.
-x5 - 2x4 + 99x3**
15. **Factor completely.
u2 - 6uv - 27v2**
16. **Factor completely.
24x3 + 14x2 - 20x**
17. **Factor completely.
75x2 – 3**
18. **Factor completely.
t5 - 81t**
19. **Factor completely.

4a2 + 16a + 16**
20. **Factor completely.
4x2 - 20xy + 25y2**
21. **Solve by factoring and using the principle of zero products.
a2 - 19a = 0**
22. **Solve by factoring and using the principle of zero products.
(x - 9)(x - 3) = -8**
23. **Solve using the five-step problem-solving process. Show all steps necessary to arrive at your solution.
A rectangular room is 7 feet longer than it is wide. If the area of the room is 228 square feet, find the length and the width.**
24. **Solve using the five-step problem-solving process. Show all steps necessary to arrive at your solution.
A cement walk of uniform width is built around a 20 foot by 40 foot rectangular pool and the area of the walk is 700 square feet. How wide will the walk be**
25. **Solve using the five-step problem-solving process. Show all steps necessary to arrive at your solution.
If an object is propelled upward from a height of 96 feet at an initial velocity of 80 feet per second, then its height h after t seconds is given by the equation h = - 16t2 + 80t + 96. After how many seconds does the object hit the ground?**