**Class discussion: 13 November 2018**

**Factoring**

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1. ***Factor fully*** each of the following expressions:
2. x3 – x2
3. 54 – 81t
4. 5x – 25x2
5. t2 – 7t + 12
6. x2 + 21x + 90
7. x2 – 21x + 104
8. u2 – 19u + 78
9. x2 – 23x + 132
10. x4 + 8x2 + 7
11. x2 – x – 6
12. s2 + s – 156
13. x2 + x – 110
14. x2 – 9x – 90
15. x2 – 12x – 85
16. x2 + 18x – 115
17. 2x2 + 3x + 1
18. 3x2 + 10x + 3
19. 2x2 + 9x + 4
20. 5t2 + 11t + 2
21. 3x2 + x – 2
22. 2x2 + 15x – 8
23. 4z2 + z – 14
24. 3x2 – 13x + 14
25. a2b4c3 – 4a2b2c2
26. 3a8b13k5 – 6 a6b11k2 + 18a4b15k2014
27. 5r4s3t9 – 25r5s3t19 + 10r4s2t9 – 15r6s99t8
28. ***Difference of two squares***
29. 5752 – 4252 (no calculator)
30. 1212 – 1202 (no calculator)
31. 20132 – 20112 (no calculator)
32. 100012 – 1 (no calculator)
33. 121x2 – 81
34. x4 – 9
35. x16 – 1
36. (a + b)2 – c2
37. (x + 5)2 – 4
38. (x + 4)2 – (7 – 2x)2
39. 1 – 25x2
40. 25x2 – 64
41. (2a + b + c)2 – (a – b + c)2
42. *Solve each of the following equations* by factoring first.
43. x4 – 3x3 = 0
44. x2 – 38x – 80 = 0
45. 2x2 – 13x – 15 = 0
46. x5 – 6x4 + 9x3 = 0
47. x5 – x/16 = 0
48. (x – 5)4(1 – 625x2)( 3x2 – 13x + 14)(x2 + 5) = 0

4. How does one factor the *sum* or *difference of two cubes*? x3 + a3 or x3 – a3

5. Factor by *grouping:*

1. x2 – 7x + 3x – 21
2. 2x4 – x3 + 4x – 2
3. x5 – x4 + 8x2 – 8x
4. x3 – x2 + x– 1
5. x4 + 2x3 + x+ 2

*Algebra is the intellectual instrument which has been created for rendering clear the quantitative aspects of the world.*

* [Sir Alfred North Whitehead](http://www.britannica.com/EBchecked/topic/642752/Alfred-North-Whitehead)