1.5 Choosing a Factoring Method

Name_____

Select which description matches each of the following polynomial types.

(a) Trinomial with no Greatest Common Factor
(b) Trinomial with Greatest Common Factor
(c) Polynomial with Four Terms
(d) Difference of Squares
(e) Sum of Cubes
(f) Prime Binomial

1. $4x^2 - 25$	**2.** $2x^2 + 3x - 5$
3. $ax - 2x + 3a - 6$	**4.** $27x^3 + 64$
5. $x^2 + 16$	**6.** $3x^2 + 6x - 45$

Select the phrase that correctly completes each of the following statements.

(a) try to factor by grouping or by the box method
(b) rewrite the middle term as a sum of two terms and then factor the polynomial with 4 terms
(c) try to factor out a GCF
(d) difference of squares or sum or difference of cubes
(e) see if anything factors further
(f) multiply the factors to verify that the product is equal to the original polynomial

7. The first step you should take when factoring a polynomial is to _____.	**8.** For a binomial with no common factors, determine if it is a _____.
9. For a polynomial with 4 terms having no common factor_____.	**10.** To check that you have factored a polynomial correctly, _____.
11. One possible method for factoring a trinomial is to _____.	**12.** After factoring a polynomial, you should _____.

Answers: **1.** (d); **3**. (c); **5**. (f); **7**. (c); **9**. (a); **11**. (b)

Factor each polynomial completely.

13. $2x^2 - 128$

14. $6x^2 - 54$

15. $2x^2 + 162$

16. $3x^2 + 48$

17. $x^2 - 11x + 24$

18. $x^2 + 11x - 12$

19. $27x^3 + 1$

20. $a^3 + 8$

Answers: **13.** $2(x + 8)(x - 8)$; **15.** $2(x^2 + 81)$; **17.** $(x - 3)(x - 8)$; **19.** $(3x + 1)(9x^2 - 3x + 1)$

Factor each polynomial completely.

21. $4ax - 15 + 6a - 10x$

22. $2x^2 + x - 9 - 18x$

23. $6x^2 + x - 7$

24. $2x^2 - 11x - 6$

25. $x^4 - 16$

26. $x^4 - y^4$

27. $x^6 - 1$

28. $64 - y^6$

Answers: **21.** $(2a - 5)(2x + 3)$; **23.** $(6x + 7)(x - 1)$; **25.** $(x^2 + 4)(x + 2)(x - 2)$; **27.** $(x + 1)(x^2 - x + 1)(x - 1)(x^2 + x + 1)$