

Test also includes review problems from earlier sections so study test reviews 1, 2, and 3 also.

1. Factor completely: $a^2 - b^2$
2. Factor completely: $a^2 + b^2$
3. Factor completely: $a^2 - 2ab + b^2$
4. Factor completely: $a^2 + 2ab + b^2$
5. Factor completely: $a^3 - b^3$
6. Factor completely: $a^3 + b^3$
7. Factor completely: $9ab^3 - 6a^2b^2$
8. Factor completely: $10a^3 + 6a^2b - 2a$
9. Factor completely: $21x^3y^2z^4 - 28x^5y^3$
10. Factor completely: $12x^2 - 3xy - 8x + 2y$
11. Factor completely: $5x^2 + 5xy - x - y$
12. Factor completely: $x^2 - 9x + 20$
13. Factor completely: $x^2 - 15x - 14$
14. Factor completely: $2y^2 + 4y - 48$
15. Factor completely: $2x^2 + 7x + 6$
16. Factor completely: $6y^2 + 7y - 20$
17. Factor completely: $2x^3 - 7x^2 - 30x$
18. Factor completely: $3x^2 - 16x + 5$
19. Factor completely: $9a^2 + 42a + 49$
20. Factor completely: $y^2 - 12y + 36$
21. Factor completely: $25x^2 - 10x + 1$
22. Factor completely: $2x^3 - 18x$

23. Factor completely: $49a^2 - 81b^2$
24. Factor completely: $25x^2 + 36y^2$
25. Factor completely: $64w^3 - 1$
26. Factor completely: $8a^3 + 125c^3$
27. Factor completely: $2x^3 - 54$
28. Review solving equations with denominators, graphing, slope of a line, word problems that can be solved by a system of equations, word problems involving area and perimeter, and solving formulas for one of the variables. (Pay particular attention to the types of problems I have mentioned that people had problems with on earlier tests in the announcements section of Blackboard.)

ANSWERS:

1. $(a - b)(a + b)$ [NOTE: Know this formula, and use it for factoring a difference of two squares.]
2. Prime (Not Factorable) [NOTE: Know this formula. A sum of two squares is not factorable unless it has a common factor. If it has a common factor, factor it out.]
3. $(a - b)^2$ [NOTE: Know this formula, and use it for factoring a perfect square trinomial with a negative middle term.]
4. $(a + b)^2$ [NOTE: Know this formula, and use it for factoring a perfect square trinomial with a positive middle term.]
5. $(a - b)(a^2 + ab + b^2)$ [NOTE: Know this formula, and use it for factoring a difference of two cubes. If you have factored out common factors first, the trinomial part of the answer will not factor further.]
6. $(a + b)(a^2 - ab + b^2)$ [NOTE: Know this formula, and use it for factoring a sum of two cubes. If you have factored out common factors first, the trinomial part of the answer will not factor further.]
7. $3ab^2(3b - 2a)$
8. $2a(5a^2 + 3ab - 1)$
9. $7x^3y^2(3z^4 - 4x^2y)$

10. $(4x - y)(3x - 2)$

11. $(x + y)(5x - 1)$

12. $(x - 4)(x - 5)$

13. Prime (Not Factorable) [NOTE: $(x - 14)(x - 1) = x^2 - 15x + 14$, not $x^2 - 15x - 14$]

14. $2(y + 6)(y - 4)$

15. $(2x + 3)(x + 2)$

16. $(2y + 5)(3y - 4)$

17. $x(2x + 5)(x - 6)$

18. $(3x - 1)(x - 5)$

19. $(3a + 7)^2$

20. $(y - 6)^2$

21. $(5x - 1)^2$

22. $2x(x + 3)(x - 3)$

23. $(7a + 9b)(7a - 9b)$

24. Prime (Not Factorable) - Sum of Squares [NOTE: If you got a different answer, carefully multiply it back together to see that it is not equal to the original problem.]

25. $(4w - 1)(16w^2 + 4w + 1)$

26. $(2a + 5c)(4a^2 - 10ac + 25c^2)$

27. $2(x - 3)(x^2 + 3x + 9)$