

## Factoring WS 2

Name

Fuston

$$1. x^2 + 16x + 64 = (x+8)(x+8) \\ = (x+8)^2$$

$$2. m^2 + 5m + 6 = (m+3)(m+2)$$

$$3. a^2 - 3a - 18 = (a-6)(a+3)$$

$$4. x^2 + x - 42 = (x+7)(x-6)$$

$$5. 5x^2 - 15 = 5(x^2 - 3) \\ = 5(x+\sqrt{3})(x-\sqrt{3})$$

$$6. x^2 - 49 = (x+7)(x-7)$$

$$7. x^3 - 2x^2 + 3x - 6 = x^2(x-2) + 3(x-2) \\ = (x-2)(x^2+3)$$

$$8. 2x^3 - 16x^2 + 8x - 64 = 2(x^3 - 8x^2 + 4x - 32) \\ = 2[x^2(x-8) + 4(x-8)] \\ = 2(x-8)(x^2+4)$$

$$9. 3x^2 - 5x - 2$$

$$(3x+1)(x-2)$$

$$= (x-2)(x+i\sqrt{3})(x-i\sqrt{3})$$

$$10. x^3y + 2x^2y$$

$$x^2y(x+2)$$

$$11. x^7 - 9x^5 = x^5(x^2 - 9)$$

$$= x^5(x+3)(x-3)$$

$$12. t^2 - 7t + 12 = (t-4)(t-3)$$

$$13. x^3 + 2x^2 - 7x - 14 = x^2(x+2) - 7(x+2) \\ = (x+2)(x^2-7)$$

$$14. a^2 - 2a + 1 = (a-1)(a-1) \\ = (a-1)^2$$

$$15. 2x^2 - 13x - 45$$

$$(2x+5)(x-9)$$

$$= (x+2)(x+\sqrt{7})(x-\sqrt{7})$$

$$16. 5m^2 - 20 = 5(m^2 - 4) = 5(m+2)(m-2)$$

$$17. n^3 - 2n^2 + 4n - 8 = n^2(n-2) + 4(n-2) \\ = (n-2)(n^2+4)$$

$$= (n-2)(n+2i)(n-2i)$$

$$18. a^2 - 3a - 18 = (a-6)(a+3)$$

$$19. 2y^2 - 10y + 8$$

$$= 2(y^2 - 5y + 4) = 2(y-1)(y-4)$$

$$20. x^2 - 11x + 28 = (x-7)(x-4)$$

$$21. y^5 + 7y^2 = y^2(y^3 + 7)$$

$$22. 9a^2 - 400 = (3a+20)(3a-20)$$

$$23. y^3 - y + 3y^2 - 3 = y(y^2-1) + 3(y^2-1) \\ = (y^2-1)(y+3)$$

$$24. 6a^2b^3 - 14abc = 2ab(3ab^2 - 7c)$$

$$25. x^6 - 9x^4$$

$$= x^4(x^2 - 9)$$

$$= x^4(x+3)(x-3)$$

$$= (y+1)(y-1)(y+3)$$

$$26. 3a^2 - 10a + 3 = (3a-1)(a-3)$$