*AAT

Chapter 1: 1-3 Algebraic Expressions (IC/HW)-days 2-3

Name: Key

Date: _____ Period: _____

Factor the polynomial.

1. $10xy + 15xy^2$

$5xy(2+3y)$

2. $121r^3s^4 + 77r^2s^4 - 55r^4s^3$

$11r^2s^3(11rs + 7s - 5r^2)$

3. $3x^2 - 4x + 2$

irreducible

4. $21x^2 + 41x + 10$

$(3x+5)(7x+2)$

5. $16z^2 - 56z + 49$

$(4z-7)^2$

6. $81r^2 - 16t^2$

$(9r-4t)(9r+4t)$

7. $x^3 - 25x$

$x(x^2-25)$

$x(x-5)(x+5)$

8. $64x^2 - 36y^2$

$4(16x^2-9y^2)$

$4(4x-3y)(4x+3y)$

9. $216x^9 + 125y^3$

$(6x^3+5y)(36x^6-30x^3y+25y^2)$

10. $(2ay^2 - axy) + (6xy - 3x^2)$

$ay(2y-x)+3x(2y-x)$

$(ay+3x)(2y-x)$

11. $(x^4 - 3x^3) + (8x - 24)$

$x^3(x-3)+8(x-3)$

$(x^3+8)(x-3)$

$(x+2)(x^2-2x+4)(x-3)$

12. $x^8 - 16$

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

$(x^2-2)(x^2+2)(x^4+4)$

13. $y^2 + 9 - 6y - 4x^2$

$(y^2-6y+9)-4x^2$

$(y-3)^2-4x^2$

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

14. $4x^3 + 4x^2 + x$

$x(4x^2+4x+1)$

$x(2x+1)(2x+1)$

$x(2x+1)^2$

15. $y^6 + 7y^3 - 8$

$(y^3+8)(y^3-1)$

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

16. The basal energy requirement for an individual indicated the minimum number of calories necessary to maintain essential life-sustaining processes such as circulation, body temperature, and respiration. Given a person's sex, weight w in kilograms, height h in centimeters, and age y in years, we can estimate the basal energy requirement in calories using the following formulas, where C_f and C_m are the calories necessary for females and males respectively:

$$C_f = 66.5 + 13.8w + 5h - 6.8y \qquad C_m = 655 + 9.6w + 1.9h - 4.7y$$

Determine the basal energy requirement for the following:

(a) 25-year old female weighing 59 kilograms and 163 centimeters tall

$C_f = 66.5 + 13.8(59) + 5(163) - 6.8(25)$

$C_f = 1525.7$

(b) 55-year old male weighing 75 kilograms and 178 centimeters tall

$C_m = 655 + 9.6(75) + 1.9(178) - 4.7(55)$

$C_m = 1454.7$