J10 pps 27-37
SOLUTIONS

P 27

[1] Deg wrt z is 2, Coef. is $6xy$
Deg wrt x and y is 2, coef is $6z^2$

P 29

[2,1] Deg 4

[2,2] Deg wrt a is 3, Deg wrt b is 3. overall is 4.

[2,3] Deg wrt x is 3, Deg wrt y is 4. overall is 4.

[2,4] wrt x is 4, wrt y is 2, wrt z is 1. overall is 7.

P 30

[3] $5x^2 - x + 7xy - 4y^2 - 3y + 2$
$2 - 3y - 4y^2 + 7xy - x + 5x^2$

P30

[1.1] $5x^3 - 7x^2 - 8x$

[1.2] $-8y^3 + 3y^2 + 16y + 3$

P31

[2.1] x^9

[2.2] $(-a^5b^3)(2ab) = -2a^6b^4$

[2.3] $-10x^7y^4$

P32

[1] $(ax+b)(cx+d) = ax(cx+d) + b(cx+d) = acx + adx + bcx + bd$ ✓

P33

[2.1] $4a^2 + 20a + 25$

[2.2] $p^2 - 4pq + 4q^2$

[2.3] $(x + \frac{y}{2})(x - \frac{y}{2}) = x^2 - \frac{y^2}{4}$

[2.4] $6a^2 - 7a - 20$

[2.5] $x^2 - xy - 12y^2$

[3.1] $(a-b)^3 = (a-b)(a-b)^2 = (a-b)(a^2 - 2ab - b^2)$

$= a^3 - 2a^2b + ab^2 - a^2b + 2ab^2 + b^3$

$= a^3 - 3a^2b + 3ab^2 + b^3$ ✓

[3.2] $(a+b)(a^2 - ab + b^2) = a^3 - a^2b + ab^2 + a^2b - ab^2 + b^3$

$= a^3 + b^3$ ✓

[3.3] $(a-b)(a^2 + ab + b^2) = a^3 + a^2b + ab^2 - a^2b - ab^2 - b^3$

$= a^3 - b^3$ ✓

P33, ctd

[4.1] $(x+3y)^3 = x^3 + 9x^2y + 27xy^2 + 9y^3$

[4.2] $(2a-3b)^3 = 8a^3 - 12a^2b + 18ab^2 - 9b^3$

[4.3] $(x+1)(x^2-x+1) = x^3+1$

[4.4] $(2x-1)(4x^2+2x+1) = 8x^3 - 1$

P34, ctd

[5.1] $(a+3b+c)^2 = (a+3b)^2 + 2(a+3b)c + c^2$
$= a^2 + 9b^2 + c^2 + 6ab + 2ac + 6bc$

[5.2] $(x-y+1)^2 = x^2 + y^2 + 1 - 2xy + 2x - 2y$

[5.3] $(2a-3b-c)^2 = 4a^2 + 9b^2 + c^2 - 6ab - 4ac - 6bc$

P35

[1.1] $3ab(2a-a^2)$

[1.2] $pq(p-r+q)$

[1.3] $5x(x-3) - 4(3-x) = 5x(x-3) + 4(x-3) = (5x+4)(x-3)$

[1.4] $3x(2-y) - (2-y) = (3x-1)(2-y)$

[2.1] $(x+5)^2$

[2.2] $(ab-2)^2$

[2.3] $(3x-1)(3x+1)$

[2.4] $(10-2a)(10+2a)$

[2.5] $(x+1)(x+10)$

[2.6] $(x+4y)(x-8y)$

→

P35 #2, ctd

[2.7] $(c-(a-b))(c+(a-b)) = (c-a+b)(c+a-b)$

[2.8] $2x^2(16x^2-9) = 2x^2(4x-3)(4x+3)$

[3.1] $x^2+4x+\underline{4}$

[3.2] $x^2-6x+\underline{9}$

[3.3] $a^2+\underline{2a}+1$

[3.4] $4a^2-12a+9$

P 36

[4.1] $2x^2+3x+1 = (2x+1)(x+1)$

[4.2] $(2x-1)(x-6)$

[4.3] $-[3a^2-5a-2] = -[(3a+1)(a-2)] = (3a+1)(2-a)$

[4.4] $2[3p^2-2pq-8q^2] = 2(3p+4)(p-2)$

[4.5] $8x^2-26xy+15y^2 = (4x-3)(2x-5)$

[4.6] $-[35x^2+16xy-12y^2]$

$= -(5x-2)(7x+6)$

$= (2-5x)(7x+6)$

P37

[5.1] $(a-3)(9+3a+9)$

[5.2] $(4x+5)^3(16x^2-20x+25)$

[5.3] $(2p-5q)(4p^2+10pq+25q^2)$