1. Complete this statement with an expression in terms of m
   $18m^3 + 9m^2 + 14m + 7 = (9m^2 + 7)(\ldots\ldots)$ [2]

2. (a) Expand and simplify $(a + b)^2$ [1]
   (b) Find the value of $a^2 + b^2$ when $a + b = 6$ and $ab = 7$. [1]

3. (a) Expand and simplify $(a - b)^2$ [1]
   (b)Find the value of $a^2 + b^2$ when $a - b = 4$ and $ab = 2$. [1]

4. (a) Factorise $p^2 - q^2$ [1]
   (b) $p^2 - q^2 = 7$ and $p - q = 2$, Find the value of $p + q$ [2]

5. Show that $(2n-5)^2-13$ is a multiple of 4 for all integer values of n. [3]

6. Factorise completely

(a) $5y-6py$. [1]
(b) $15k^2m-20m^4$ [2]
(c) $7x^7+14x^{14}$ [2]
(d) $12x^2+15xy-9x$ [2]
(e) $2a+4b-ax-2bx$ [2]
(f) $u+4t+ux+4tx$ [2]
(g) $a+b+at+bt$ [2]
(h) $2c-4d-pc+2pd$ [2]
(i) $18y-3ay+12x-2ax$ [2]
(j) (i) $7k^2-15k$ [1]
j(ii) $12(m+p)+8(m+p)^2$ [2]
(k) $7(h+k)^2-21(h+k)$ [2]
(l) $3(x-1)^2+(x-1)$ [2]
(m) $9t^2-u^2$ [2]
(n) $9w^2-100$ [1]
(o) $4y^2-81$ [1]
(p) $4p^2-9$ [1]
(q) $3x^2-48y^2$ [3]
(r) $2t^2-98m^2$ [3]
(s) $128-8t^2$ [2]
(t) $8x^2-72y^2$ [3]
(u) $3a^2-12b^2$ [3]
(v) $5m^2-20p^4$ [3]
(w) p^2x-4q^2x [3]
(x) t^2-6t+8 [2]
(y) $x^2-x-132$ [2]
(z) $2x^2-5x-3$ [2]
(A) $5x^2-23x+12$ [2]

ANSWERS:

1. (2m + 1)

2. a) $a^2 + 2ab + b^2$ b) 22

3. a) $a^2 - 2ab + b^2$ b) 20

4 a) (p – q)(p + q) b) 3.5

5. $4(n^2 - 5n + 3)$

6. a) y(5 – 6p)
b) $5m(3k^2 - 4m^3)$
c) $7x^7(1 + 2x^7)$
d) $3x(4x + 5y - 3)$
e) $(2 - x)(a + 2b)$
f) $(1 + x)(u + 4t)$
g) (1 + t)(a + b)
h) (2 – p)(c – 2d)
i) $(6 - a)(3y + 2x)$
j)(i) k(7k – 15)
j(ii) 4(m + p)(3 + 2m + 2p)
k) 7(h + k)(h + k – 3)
l) $(x - 1)(3x - 2)$
m) (3t + u)(3t – u)
n) (3w + 10)(3w – 10)
o) (2y – 9)(2y + 9)
p) (2p + 3)(2p – 3)
q) $3(x + 4y)(x - 4y)$
r) 2(t – 7m)(t + 7m)
s) 8(4 + t)(4 – t)
t) $8(x + 3y)(x - 3y)$
u) 3(a + 2b)(a – 2b)
v) $5(m + 2p^2)(m - 2p^2)$
w) $x(p + 2q)(p - 2q)$
x) (t – 2)(t – 4)
y) $(x + 11)(x - 12)$
z) $(2x + 1)(x - 3)$
A) $(x - 4)(5x - 3)$