**F.3 Mathematics – Supplementary Worksheet for NCM 3A Chapter 1**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ( )**

**Class: 3\_\_\_\_\_\_**

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Level 1**

1. Factorize the following polynomials.

(a) –36*a*2 + *b*2

(b) 4*x*2*y*2 – 49*z*2

2. Factorize the following polynomials.

(a) (3 – *m*)2 – 144

(b) (*x* + 2*y*)2 – 9*y*2

3. Factorize the following polynomials.

(a) 9*a*2 – 30*ab* + 25*b*2

(b) 16*x*2 + 56*xy* + 49*y*2

4. Factorize the following polynomials.

(a) 8*m*2 – 8*mn* + 2*n*2

(b) 3*a*2 + 12*ab* + 12*b*2

5. Factorize the following polynomials.

(a) 6*a*2 – *a* – 2

(b) 14*b*2 – 13*b* + 3

6. Factorize the following polynomials.

(a) 6*a*2 + 13*ab* – 5*b*2

(b) –4*a*2 – 10*ab* + 6*b*2

7. Factorize the following polynomials.

(a) 8*x*3 – 125*y*3

(b) *m*3*n*3 – 216*p*3

8. Factorize the following polynomials..

(a) 16*x*3 + 2*y*3

(b) 192*a*3 – 375*b*3

**Level 2**

1. Factorize the following polynomials.

(a) (*a* – *b*)2 – (*a* + *b*)2

(b) (2*x* – *y*)2 – (*x* + 2*y*)2

2. Factorize the following polynomials.

(a) 25*m*2 – 36*n*2 – 5*m* – 6*n*

(b) 81*a*4 – 256

3. Factorize the following polynomials.

(a) 50*a*2 – 20*ab* + 2*b*2 \*\* previously 50*a*2 – 20*a*2*b*2 + 2*b*2,which is unsolvable using a Perfect Square Identity

(b) 16(*x* + *y*)2 – 24*x*(*x* + *y*)+ 9*x*2

4. (a) Factorize 16*a*2 – 16*ab* + 4*b*2.

(b) Using the result in (a), factorize 16*a*2 – 16*ab* + 4*b*2 – 25*c*2.

5. Factorize the following polynomials.

(a) 60*a*2 – 28*ab* – 8*b*2

(b) –42*c*2 + 68*cd* – 16*d*2

6. (a) Factorize 9*m*2 – 6*mn* + *n*2.

(b) Using the result in (a), factorize 9*m*2 – 6*mn* + *n*2 + 6*mp* – 2*np* + *p*2.

7. Factorize the following polynomials.

(a) (2*x* – *y*)3 – (*x* + *y*)3

(b) 512*a*3 – 8*b*3

8. (a) Factorize 27*m*3 – 1.

(b) Using the result in (a), factorize 27*m*3 + 9*m* – 4.