**FACTORING – Extra Practice**

**Definition:**

1. Determine if the following expressions are sums or products, and make the list of their factors or terms.

a) $3x\left(x+2\right)-2x$

b) $5x(x-1)$

c) $\left(2x-3\right)^{2}$

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

e) $\left(2x-3\right)^{2}-3(x+2)$
2. Expand the following expressions :

a) $x^{2}\left(2x-3\right)=$

b) $\left(2x-3\right)\left(3x+2\right)=$

c) $\left(5x-4\right)^{2}=$

d) $\left(2x+1\right)^{2}-4x\left(2x-5\right)=$

e) $\left(2x+1\right)\left(3x-2\right)-\left(4x+3\right)\left(x-4\right)=$

f) $\left(2x-1\right)\left(x+3\right)\left(x-5\right)=$

**Factoring by common factor:**

1. Factor the following expressions

a) $16x^{2}-12x=$

b) $5x^{2}-10x+25=$
c) $\left(2x+3\right)\left(x-2\right)-5x\left(2x+3\right)=$

d) $2\left(x+4\right)^{2}-\left(x-4\right)\left(x+4\right)=$

**Factoring trinomials of the form** $ax^{2}+bx+c$**:**

1. Factor the following expressions :
a) $x^{2}+7x+12=$

b) $2x^{2}-14x+12=$

c) $x^{2}+3x-10=$

d) $2x^{2}+7x-4=$

e) $-x^{2}+5x+6=$

f) $-8x^{3}+10x^{2}+12x=$

g) $4x^{2}+14x-8=$

**Factoring Special polynomials:**

1. Factor the following expressions :

a) $16-25x^{2}=$

b) $2x^{2}-2=$

c) $x^{2}-12x+36=$

d) $2x^{2}-28x+98=$

e) $9x^{2}-24x+16=$

f) $3x^{2}+24x+48=$

g) $\frac{1}{9}x^{2}-\frac{2}{3}x+1=$

h) $0.16x^{2}-0.09=$

i) $\frac{2}{3}x^{2}+\frac{20}{3}x+\frac{50}{3}=$

j) $-50x^{2}+40x-8=$

**Other techniques:**

1. Factor the following expressions :

a) $3\left(2x-1\right)^{2}+14\left(2x-1\right)+8=$

b) $\left(x^{2}+2x\right)^{2}-2\left(x^{2}+2x\right)-3=$

c) $\left(x^{2}+1\right)^{2}-15\left(x^{2}+1\right)+50=$

d) $4\left(x^{2}-25\right)^{2}-9\left(x-5\right)^{2}=$