

$$1) \quad 3a^2 + 6a$$

Factor out GCF from both terms

Prime factors

$$3a^2 \rightarrow 3 \cdot a \cdot a$$

Common factors are circled in green

$$6a \rightarrow 2 \cdot 3 \cdot a$$

$$\text{GCF} = 3a$$

GCF = greatest common factor

$$= 3a(a) + 3a(2)$$

$$= 3a(a+2)$$

$$4) \quad 36a^3 - 4a^2$$

Prime factors

$$36a^3 \rightarrow 2 \cdot 2 \cdot 3 \cdot 3 \cdot a \cdot a \cdot a$$

$$4a^2 \rightarrow 2 \cdot 2 \cdot a \cdot a$$

$$\text{GCF} = 2 \cdot 2 \cdot a \cdot a = 4a^2$$

$$= 4a^2(9a) - 4a^2(1)$$

$$= 4a^2(9a - 1)$$

$$7) \quad x^2y^3z - 2xy$$

$$x^2y^3z \rightarrow x \cdot x \cdot y \cdot y \cdot y \cdot z$$

$$2xy \rightarrow 2 \cdot x \cdot y$$

$$\text{GCF} = xy$$

$$= xy(xy^2z) - xy(2)$$

$$= xy(xy^2z - 2)$$