Playing with Indices

$$8^{2}-4^{3}+16^{3}-8^{4}+32^{4}-16^{5}= ?$$

$$27^{2}-9^{3}+81^{3}-27^{4}+243^{4}-81^{5}= ?$$

What’s going on here?

Make another like this.

Can you generalise?

These might help…

$$4^{3}-8^{2}= ?$$

$$8^{4}-16^{3}= ?$$

$$16^{5}-32^{4}= ?$$

$$9^{3}-27^{2}= ?$$

$$27^{4}-81^{3}= ?$$

$$81^{5}-243^{4}= ?$$

$$\left(2^{2}\right)^{3}-\left(2^{3}\right)^{2}=2^{6}-2^{6}$$

$$\left(3^{3}\right)^{2}-\left(3^{3}\right)^{2}=3^{6}-3^{6}$$