**6D Differentiating Hyperbolics**

1. Show that
2. Show that
3. Show that
4. Differentiate with respect to
5. Differentiate with respect to
6. Given that:

Where and are constants, prove that

1. Show that
2. Given , find
3. Given , prove that:
4. Show that
5. Find the first two non-zero terms in the series expansion of
6. The general term for the series expansion of is given by:

Find, in its simplest terms, the third term in the sequence

1. Use your approximation, up to and including the term in , to find an approximation for
2. Calculate the percentage error by using this approximation