Linear Algebra Quiz 2

Assume A and B are invertible 10×10 matrices and
    M is the inverse of A, and
    N is the inverse of B.

Express the following in terms of M and N:

1.) $(AB)^{-1}$

2.) $\left(\frac{1}{3}A\right)^{-1}$

3.) $(A^2 B^T)^{-1}$

4.) $(AABAB)^{-1}$