(a) The first step here is to get rid of the coefficients on the logarithms. This will use Property 7 in reverse. In this direction, Property 7 says that we can move the coefficient of a logarithm up to become a power on the term inside the logarithm.

Here is that step for this part.

$$7\log_{12} x + 2\log_{12} y = \log_{12} x^7 + \log_{12} y^2$$

We've now got a sum of two logarithms both with coefficients of 1 and both with the same base. This means that we can use Property 5 in reverse. Here is the answer for this part.

$$7\log_{12} x + 2\log_{12} y = \log_{12}\left(x^7 y^2\right)$$

(b) Again, we will first take care of the coefficients on the logarithms.

$$3\log x - 6\log y = \log x^3 - \log y^6$$

We now have a difference of two logarithms and so we can use Property 6 in reverse. When using Property 6 in reverse remember that the term from the logarithm that is subtracted off goes in the denominator of the quotient. Here is the answer to this part.

$$3\log x - 6\log y = \log\left(\frac{x^3}{y^6}\right)$$

(c) In this case we've got three terms to deal with and none of the properties have three terms in them. That isn't a problem. Let's first take care of the coefficients and at the same time we'll factor a minus sign out of the last two terms. The reason for this will be apparent in the next step.

$$5\ln\left(x+y\right) - 2\ln y - 8\ln x = \ln\left(x+y\right)^5 - \left(\ln y^2 + \ln x^8\right)$$