Absolute Values and Areas

1. Write the following as sums of integrals which do not use absolute value.
   If you have time, then integrate all parts to check your work!

   (a) $\int_1^5 \left|6-2x\right| \, dx$

   (b) $\int_2^5 \left|x^2-3x\right| \, dx$

   (c) $\int_1^3 \left|x^3-2x^2\right| \, dx$

   (d) $\int_0^5 \left|x^2+x-6\right| \, dx$

2. Write (sums of) integrals computing the following areas (without using absolute value). If you have time, then integrate all parts to check your work!

   (a) Area between $y = 2x - 1$ and $y = 5 - x$ from $x = 0$ to $x = 3$.

   (b) Area enclosed by $y = x^2 + x$ and $y = 3x + 3$.

   (c) Area enclosed by $y = x + 1$ and $y = 3 - x$ and $x = 3$.

   (d) Area enclosed by $y = x + 1$ and $y = 3 - x$ and $y = x/3 + 1$.