a. To find the change in national income we use the formula me = $\Delta Y/\Delta E$, so ΔY = me*ΔE, where ΔE - deficiency of aggregate expenditure of $4bn, ΔY - change in national income, me - multiplier.
me = 1/(1 - (c - im)*(1 - t)), where c - marginal propensity to consume, t - marginal tax rate, im - marginal propensity to import.
me = 1/(1 - (0.8 - 0.25)*(1 - 0.3)) = 1/(1 - 0.55*0.7) = 1/0.615 = 1.626
So, ΔY = 4*1.626 = $6.5 bn

b. As we can see the government's forecast that the $2bn in extra state spending is sufficient to remove the deflationary gap and restore full employment was true, so this extra spending will result in $6.5 bn increase in national income with the help of only extra $2 bn.