3) $a\,Sb_2S_3 + b\,HNO_3 \rightarrow c\,Sb_2O_5 + d\,NO_2 + e\,S + f\,H_2O$

Sb	$2a$	$= 2c$
S	$3a$	$= e$
H	b	$= 2f$
N	b	$= d$
O	$3b$	$= 5c + 2d + f$

$a = 1$ ✓

$2(1) = 2c$

$2 = 2c$

$c = 1$ ✓

$3(1) = e$

$3 = e$ ✓

$3(b) = 5 + 2(d) + f$

$3 = 5 + 2(d) + f$

$2 = 2(d) + f$

$1 = d + f$

$d = 1/2$ ✓

$f = 1/2$ ✓

$3 = 5 + 2(\frac{1}{2}) + (\frac{1}{2})$

$3(b) = 5 + \frac{1}{2}$

$3b = \frac{6}{3}$

$b = 2$ ✓

$1\,Sb_2S_3 + 2\,HNO_3 \rightarrow Sb_2O_5 + \frac{1}{2}NO_2 + 3S + \frac{1}{2}H_2O$