$\lim_{y\to\infty} 1$

2) $x\in\langle 1,2\rangle$; $y>4$

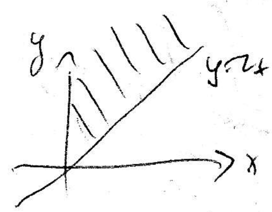
$$F(x,y)=\int_1^x\int_2^4 f(u,v)\,du\,dv=\int_1^x \frac{1}{6}4u[v]_2^4-\frac{1}{6}\left[\frac{v^2}{2}\right]_2^4du=$$

$$=\int_1^x\frac{2}{3}u\,2.-\frac{1}{12}(16-4)=\int_1^x\frac{2}{3}u-1\,du=\frac{4}{3}\left[\frac{u^2}{2}\right]_1^x-$$

$$-[u]_1^x=\underline{\underline{\frac{2}{3}(x^2-1)-(x-1)}}$$

3.) $y\in\langle 2,4\rangle$; $x>2$

$$F(x,y)=\int_2^y\int_1^2\frac{1}{6}(4u-v)\,du\,dv=\;...\;=\underline{\underline{(y-2)-\frac{1}{12}(y^2-4)}}$$



b) $Pr(Y>2X)=P(\;x=\text{libovolné},\;Y>2x)=$

$$=\int_{-\infty}^{\infty}\int_{2x}^{\infty}\frac{1}{6}(4x-y)\,dy\,dx=\int_1^2\int_{2x}^4\frac{1}{6}(4u-v)\,du\,du=$$

$$=\int_1^2\left[\frac{2}{3}xy-\frac{1}{12}y^2\right]_{2x}^4dx=\int_1^2\frac{2}{3}x(4-2x)-\frac{1}{12}(16-4x^2)\,dx=$$