150

$$\lim_{x\to+\infty} x^2\left(\sqrt{\frac{x^2+1}{4x^2+3}}-\frac{1}{2}\right) =$$

$$= \lim_{x\to+\infty} \frac{1}{2}\, x^2\left(\sqrt{\frac{4x^2+4}{4x^2+3}}-1\right) =$$

$$= \lim_{x\to+\infty} \frac{1}{2}\, x^2\left(\sqrt{1+\frac{0\;1}{4x^2+3}}-1\right) =$$

$$= \frac{1}{2}\lim_{x\to+\infty} x^2\,\frac{1}{4x^2+3}\,\frac{\left(\sqrt{1+\frac{1}{4x^2+3}}-1\right)}{\frac{1}{4x^2+3}} =$$

$$= \frac{1}{2}\cdot\frac{1}{4}\cdot\frac{1}{2} = \frac{1}{16}$$

Soc.
T
U
V
W
X
Y