تمارين 2.6

حدد ما إذا كانت التكاملات المعتلة التالية متقاربة أم متباعدة ؟ واحسب قيمتها في حالة التقارب :

(1) $\displaystyle\int_3^{\infty} \frac{1}{(x-2)^4}\,dx$ (2) $\displaystyle\int_5^{\infty} \frac{1}{x-3}\,dx$

(3) $\displaystyle\int_{-\infty}^{-2} \frac{1}{(x+1)^2}\,dx$ (4) $\displaystyle\int_1^{\infty} e^{-x}\,dx$

(5) $\displaystyle\int_{-\infty}^{0} e^{x}\,dx$ (6) $\displaystyle\int_0^{\infty} x\,e^{-x}\,dx$

(7) $\displaystyle\int_2^{\infty} \frac{1}{x\,\ln^2 x}\,dx$ (8) $\displaystyle\int_{-\infty}^{\infty} \frac{x}{\sqrt{x^2+1}}\,dx$

(9) $\displaystyle\int_{-\infty}^{\infty} \frac{x}{1+x^4}\,dx$ (10) $\displaystyle\int_0^{2} \frac{x}{\sqrt{4-x^2}}\,dx$

(11) $\displaystyle\int_0^{2} \frac{x}{(4-x^2)^{\frac{5}{2}}}\,dx$ (12) $\displaystyle\int_0^{1} \ln x\,dx$

(13) $\displaystyle\int_1^{2} \frac{1}{x-1}\,dx$ (14) $\displaystyle\int_2^{3} \frac{1}{\sqrt{x-2}}\,dx$

(15) $\displaystyle\int_0^{4} \frac{1}{\sqrt[3]{x-2}}\,dx$ (16) $\displaystyle\int_0^{\infty} \frac{e^{-\sqrt{x}}}{\sqrt{x}}\,dx$