Учебная практика 2 курс.

Исследовать на сходимость и равномерную сходимость интеграл, на множествах E_1 и E_2

1) $f(y) = \int_0^{+\infty} \frac{dx}{(x+1)^y} \qquad E_1 = [2; +\infty); \quad E_2 = [4; +\infty)$

2) $f(y) = \int_0^{+\infty} x^2 e^{-x^4 y} dx \qquad E_1 = [1; +\infty); \quad E_2 = [0; +\infty)$

3) $f(y) = \int_0^{+\infty} \frac{ln^y x}{x} sinx\ dx \qquad E_1 = [0; 1]; \quad E_2 = [2; +\infty)$

4) $f(y) = \int_1^{2} \frac{dx}{(x-1)^y} \qquad E_1 = [-1; \frac{2}{3}]; \quad E_2 = [-1; 1)$

5) $f(y) = \int_0^{+\infty} \frac{dx}{(4+(x-y)^6} \qquad E_1 = [-\infty; 0) \quad E_2 = [0; +\infty)$

6) $f(y) = \int_0^{+\infty} e^{-(x-y)^2} dx \qquad E_1 = [0; 2]; \quad E_2 = [0; +\infty)$

7) $f(y) = \int_0^{+\infty} \frac{dx}{1+x^y} \qquad E_1 = [1; +\infty); \quad E_2 = [2; +\infty)$

8) $f(y) = \int_0^{+\infty} y e^{-xy} dx \qquad E_1 = [0; 1]; \quad E_2 = [1; +\infty)$

9) $f(y) = \int_0^{+\infty} \sqrt{y} e^{-yx^2} dx \qquad E_1 = [0; +\infty); \quad E_2 = [1; +\infty)$

10) $f(y) = \int_0^{+\infty} \frac{\sin x^2}{1+x^y} dx \qquad E_1 = [0; +\infty); \quad E_2 = [1; +\infty)$

11) $f(y) = \int_0^{+\infty} \sin y e^{-y^2(2+x^2)} dx \qquad E_1 = R; \quad E_2 = [0; 1]$

12) $f(y) = \int_0^{+\infty} \sin \frac{1}{x} \cdot \frac{dx}{x^y} \qquad E_1 = (0; 2); \quad E_2 = [1; 2)$

13) $f(y) = \int_0^{1} \frac{\operatorname{arctg} xy}{(1-x^2)^y} dx \qquad E_1 = [0; \frac{1}{2}]; \quad E_2 = [0; \frac{1}{3}]$

14) $f(y) = \int_0^{+\infty} \frac{\sin e^x}{1+x^y} dx \qquad E_1 = [0; +\infty); \quad E_2 = [1; +\infty)$

15) $f(y) = \int_1^{+\infty} \frac{y}{x^3} e^{-\frac{y}{2x^2}} dx \qquad E_1 = [0; +\infty); \quad E_2 = [2; +\infty)$

16) $f(y) = \int_0^{+\infty} \cos x^y\ dx \qquad E_1 = [1; +\infty); \quad E_2 = [0; +\infty)$

17) $f(y) = \int_0^{+\infty} \frac{\sin x}{x} e^{-xy} dx \qquad E_1 = [0; +\infty); \quad E_2 = [0; 1]$

18) $f(y) = \int_2^{+\infty} \frac{\cos xy \;\; \ln x}{\sqrt{x}} \qquad E_1 = [1; +\infty); \quad E_2 = [0; +\infty)$

19) $f(y) = \int_0^1 \frac{x^y \cdot \operatorname{arctg} xy}{\sqrt{1-x^2}} dx \qquad E_1 = [0; 2); \quad E_2 = [2; +\infty)$

20) $f(y) = \int_0^{+\infty} \frac{\cos xy}{4+x^2} dx \qquad E_1 = [0; +\infty); \quad E_2 = R$

21) $f(y) = \int_0^{+\infty} \frac{ln(1+x) \operatorname{arctg} xy}{x^2} dx \qquad E_1 = [-1; 1]; \quad E_2 = R$

22)$f(y) = \int_0^1 x^{y-1} \ln^3 x dx \qquad E_1 = [1; +\infty); \quad E_2 = [0; +\infty)$

23)$f(y) = \int_1^{+\infty} \frac{\ln^3 x}{x^2 + y^4} dx \qquad E_1 = [0; +\infty); \quad E_2 = R$

24)$f(y) = \int_1^{+\infty} x^y e^{-2x} dx \qquad E_1 = [1; 3]; \quad E_2 = (0; +1]$

25) $f(y) = \int_0^{+\infty} e^{-yx^4} dx \qquad E_1 = [1; +\infty); \quad E_2 = [0; +\infty)$