3.5. Вычислить определенный интеграл $F = \int_{X_0}^{X_1} y\,dx$, методами прямоугольников, трапеций, Симпсона с шагами h_1, h_2. Оценить погрешность вычислений, используя Метод Рунге-Ромберга:

1. $y = \frac{x}{2x+5}$, $X_0 = -1,\quad X_k = 1,\quad h_1 = 0.5,\quad h_2 = 0.25;$
2. $y = \frac{x}{(3x+4)^2}$, $X_0 = 0,\quad X_k = 4,\quad h_1 = 1.0,\quad h_2 = 0.5;$
3. $y = \frac{x}{(3x+4)^3}$, $X_0 = -1,\quad X_k = 1,\quad h_1 = 0.5,\quad h_2 = 0.25;$
4. $y = \frac{3x+4}{2x+7}$, $X_0 = -2,\quad X_k = 2,\quad h_1 = 1.0,\quad h_2 = 0.5;$
5. $y = \frac{1}{(2x+7)(3x+4)}$, $X_0 = -1,\quad X_k = 1,\quad h_1 = 0.5,\quad h_2 = 0.25;$
6. $y = \frac{x}{(2x+7)(3x+4)}$, $X_0 = -1,\quad X_k = 1,\quad h_1 = 0.5,\quad h_2 = 0.25;$
7. $y = \frac{1}{3x^2+4x+2}$, $X_0 = -2,\quad X_k = 2,\quad h_1 = 1.0,\quad h_2 = 0.5;$
8. $y = \frac{1}{x^2+4}$, $X_0 = -2,\quad X_k = 2,\quad h_1 = 1.0,\quad h_2 = 0.5;$
9. $y = \frac{x}{x^2+9}$, $X_0 = 0,\quad X_k = 2,\quad h_1 = 0.5,\quad h_2 = 0.25;$
10. $y = \frac{x^2}{x^2+16}$, $X_0 = 0,\quad X_k = 2,\quad h_1 = 0.5,\quad h_2 = 0.25;$
11. $y = \frac{1}{x^3+64}$, $X_0 = -2,\quad X_k = 2,\quad h_1 = 1.0,\quad h_2 = 0.5;$
12. $y = \frac{x}{x^3+8}$, $X_0 = -1,\quad X_k = 1,\quad h_1 = 0.5,\quad h_2 = 0.25;$
13. $y = \frac{x^2}{x^3-27}$, $X_0 = -2,\quad X_k = 2,\quad h_1 = 1.0,\quad h_2 = 0.5;$
14. $y = \frac{1}{x^4+16}$, $X_0 = 0,\quad X_k = 2,\quad h_1 = 0.5,\quad h_2 = 0.25;$
15. $y = \frac{x}{x^4+81}$, $X_0 = 0,\quad X_k = 2,\quad h_1 = 0.5,\quad h_2 = 0.25;$
16. $y = \frac{x^2}{x^4+256}$, $X_0 = 0,\quad X_k = 2,\quad h_1 = 0.5,\quad h_2 = 0.25;$
17. $y = \frac{1}{256-x^4}$, $X_0 = -2,\quad X_k = 2,\quad h_1 = 1.0,\quad h_2 = 0.5;$
18. $y = \frac{x}{16-x^4}$, $X_0 = -1,\quad X_k = 1,\quad h_1 = 0.5,\quad h_2 = 0.25;$

19 $y = \frac{x^2}{625 - x^4}$, $X_0 = 0,\quad X_k = 4,\quad h_1 = 1.0,\quad h_2 = 0.5;$

20. $y = \frac{\sqrt{x}}{4 + 3x}$, $X_0 = 1,\quad X_k = 5,\quad h_1 = 1.0,\quad h_2 = 0.5;$

21. $y = \frac{\sqrt{x}}{(1 + 2x)^2}$, $X_0 = 1,\quad X_k = 5,\quad h_1 = 1.0,\quad h_2 = 0.5;$

22. $y = x\sqrt{2x + 3}$, $X_0 = -1,\quad X_k = 1,\quad h_1 = 0.5,\quad h_2 = 0.25;$

23. $y = \frac{1}{\sqrt{(2x + 7)(3x + 4)}}$, $X_0 = 0,\quad X_k = 4,\quad h_1 = 1.0,\quad h_2 = 0.5;$

24. $y = \sqrt{16 - x^2}$, $X_0 = -2,\quad X_k = 2,\quad h_1 = 1.0,\quad h_2 = 0.5;$

25. $y = x\sqrt{49 - x^2}$, $X_0 = -2,\quad X_k = 2,\quad h_1 = 1.0,\quad h_2 = 0.5;$

26. $y = x^2\sqrt{36 - x^2}$, $X_0 = 1,\quad X_k = 5,\quad h_1 = 1.0,\quad h_2 = 0.5;$

27. $y = \sqrt{9 + x^2}$, $X_0 = 1,\quad X_k = 5,\quad h_1 = 1.0,\quad h_2 = 0.5;$

28. $y = x^3\sqrt{4 + x^2}$, $X_0 = 1,\quad X_k = 5,\quad h_1 = 1.0,\quad h_2 = 0.5;$

29. $y = \sqrt{x^2 - 36}$, $X_0 = 6.5,\quad X_k = 8.5,\quad h_1 = 0.5,\quad h_2 = 0.25;$

30. $y = x^3\sqrt{x^2 - 49}$, $X_0 = 7.5,\quad X_k = 9.5,\quad h_1 = 0.5,\quad h_2 = 0.25;$