Джугели Дмитрий ИВТ-13

Лаб2

Номер1

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| Код  clc  clear    syms x ph    y1 = @(x) x .\* sin(x);  y2 = @(x) x.^2 - 1;  s = solve(x \* sin(x) - x^2 + 1, x);  s = -1.6172  f = @(x) x.\*sin(x) - x.^2 +1;  int = quad(f, s, -s) |
| Вывод  s =  -1.6172  int =  2.5626 |

Номер 2

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| Код  clc  clear    syms x    y1 = @(x) x.^2.\*sin(x/6) - 2;  ys1 = @(x) x.^2.\*sin(x/6) - 2 - 25;  Vy1 = @(x) x .\* abs(x.^2.\*sin(x/6) - 2);    y2 = @(x) x.^(2.2) .\* sin(x/6) + 0.5;  ys2 = @(x) x.^(2.2) .\* sin(x/6) + 0.5 - 25;  Vy2 = @(x) x .\* abs(x.^(2.2) .\* sin(x/6) + 0.5);    y3 = 0;    y4 = 25;  Vy4 = @(x) 25\*x;    s0 = fzero(ys1, 5)  s1 = fzero(ys2, 5)  s2 = fzero(y1, 2)    V = 2\*pi\*(quad(Vy2 ,s2,s1)-quad(Vy1 ,s2,s1) + quad(Vy2, 0, s2) + quad(Vy4, s1, s0) -...  quad(Vy2, s1, s0)) |
| Вывод  s0 =  5.7458  s1 =  4.9309  s2 =  2.3084  V =  166.7845 |

Номер 3

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| Код  clc  clear    syms x    f = 7 \* sqrt(1 - x^2 / 25);  df = diff(f, x)  dfm = @(x) sqrt(1+(-(7\*x)./(25\*(1 - x.^2/25).^(1/2))).^2);  m = quad(dfm, -5, 5)    dfMx = @(x) 7 .\* sqrt(1 - x.^2 / 25) .\* sqrt(1+(-(7\*x)./(25\*(1 - x.^2/25).^(1/2))).^2);  Mx = quad(dfMx, -5, 5)    dfMy = @(x) x .\* sqrt(1+(-(7\*x)./(25\*(1 - x.^2/25).^(1/2))).^2);  My = quad(dfMy, -5, 5)    Xc = My / m  Yc = Mx / m    R = 1 /sqrt(2) \* 100 - 7 + Yc |
| Вывод  m =  18.9807  Mx =  79.9713  My =  0  Xc =  0  Yc =  4.2133  R =  67.9240  >> |

Номер 4

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| Код  clc  clear  clf    syms x  f = -pi/2:0.1:pi/2;  r1 = sqrt(8\*cos(2\*f));  polar(f, r1)    a = input('a=')  r = @(ph) (8\*cos(2\*ph));    f1 = -a;  f2 = a;    S = 1/2 \* quad(r, f1, f2)    func = @(ph) sqrt((8.\*cos(2.\*ph)) + (8.\*sin(2.\*ph).^2)./cos(2.\*ph));  L = quad(func, f1, f2) |
| Вывод  a=1  a =  1  S =  3.6372  L =  7.4163 + 3.7175i |