

Énergie potentielle d'interaction des anneaux magnétiques

restart

with(student)

[*D, Diff, Doubleint, Int, Limit, Lineint, Product, Sum, Tripleint, changevar, completesquare, distance, equate, integrand, intercept, intparts, leftbox, leftsum, makeproc, middlebox, middlesum, midpoint, powsubs, rightbox, rightsum, showtangent, simpson, slope, summand, trapezoid*]

$$eee := \frac{\cos(t2 - t1)}{\left((x + \cos(t2) - \cos(t1))^2 + (\sin(t2) - \sin(t1))^2 \right)^{\frac{3}{2}}}$$

$$\frac{\cos(-t2 + t1)}{\left((x + \cos(t2) - \cos(t1))^2 + (\sin(t2) - \sin(t1))^2 \right)^{3/2}}$$

$R := 58$

58 (3)

$Elist := []$

[] (4)

for lr **from** 4.85 **by** 0.15 **to** 7.4 **do**

$x := \frac{\exp(lr)}{R};$

$EE := evalf(Doubleint(eee, t1 = 0 .. 2 \pi, t2 = 0 .. 2 \pi));$

$Elist := [op(Elist), -EE]$

end do:

$Elist$

[25.30565645, 3.510503352, 0.9774059022, 0.3414857360, 0.1332308818, 0.05536946699, 0.02393754051, 0.01062161855, 0.004797509275, 0.002193971389, 0.001012218301, 0.0004699673828, 0.0002192065929, 0.0001025867914, 0.00004812735557, 0.00002261897192, 0.00001064456718, 0.000005014256406]

(5)