$B := Vector[row](10);$

$$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} \quad (1)$$

for a **from** 1 **to** 10 **do**

$B[a] := \frac{rand(\,)}{10^{12}} - 0.5;$

#rand() returns a random 12 digit non-negative integer (from Maple help file)

end do:

B

$$[0.1272851981, 0.1100418700, -0.4638847747, -0.4507883113, -0.0498550819, -0.1147166333, 0.2301565454, 0.2847364978, -0.3297304842, 0.3480672034] \quad (2)$$

 # This B vector is our stochastic term.

#B is bounded by -0.5 and 0.5

$f := Vector[row](10);$

$$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} \quad (3)$$

for c **from** 2 **to** 9 **do**

$f[c] := (c-5)^2 + 9;$

end do:

f

$$\begin{bmatrix} 0 & 18 & 13 & 10 & 9 & 10 & 13 & 18 & 25 & 0 \end{bmatrix} \quad (4)$$

$g := f + B;$

$$[0.127285198099999997, 18.1100418699999999, 12.5361152252999997, 9.54921168869999981, 8.95014491809999946, 9.88528336669999952, 13.2301565453999999, 18.2847364978000009, 24.6702695158000012, 0.348067203400000025] \quad (5)$$

 # use Trapizoidal rule instead of quadrature method

$answersum := 0:$

for d **from** 1 **to** 9 **do**

$answersum := answersum + \frac{(g[d] + g[d+1])}{2};$

end do:

$answersum$

$$115.4536359 \quad (6)$$

 # so our function f, from equation 4 has had some noise added to it, and then we added the areas of the trapezoids for our numeric aproximation.