$f := x \to \exp(-x^2)$

$$f := x \mapsto e^{-x^2} \tag{1}$$

$\Delta x := \frac{4}{5}$

$$\Delta x := \frac{4}{5} \tag{2}$$

$a := -2$

$$a := -2 \tag{3}$$

$b := 6$

$$b := 6 \tag{4}$$

$$\frac{\Delta x}{3} \cdot (f(a) + 4 \cdot f(a + \Delta x) + 2 \cdot f(a + 2 \cdot \Delta x) + 4 \cdot f(a + 3 \cdot \Delta x) + 2 \cdot f(a + 4\,\Delta x) + 4 \cdot f(a + 5 \cdot \Delta x) + 2 \cdot f(a + 6 \cdot \Delta x) + 4 \cdot f(a + 7 \cdot \Delta x) + 2 \cdot f(a + 8 \cdot \Delta x) + 4 \cdot f(a + 9 \cdot \Delta x) + f(a + 10 \cdot \Delta x))$$

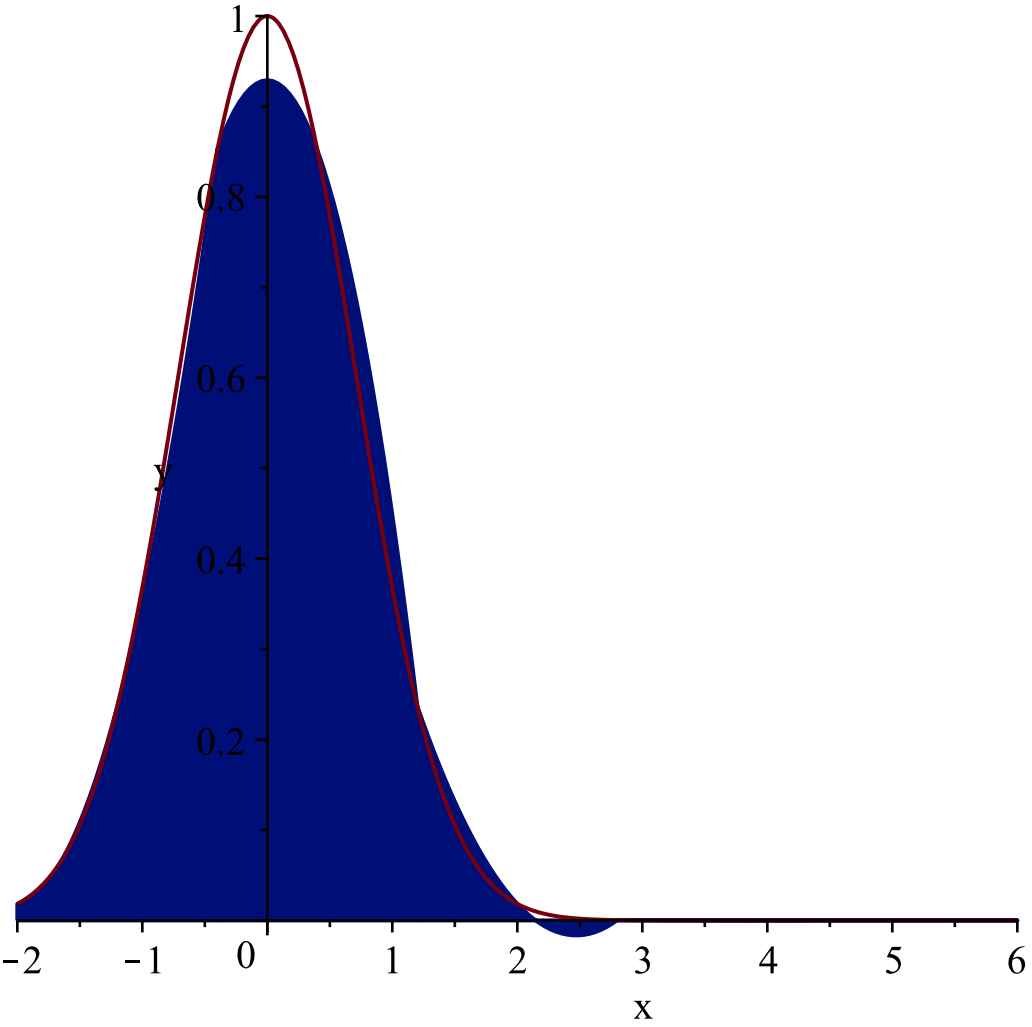
$$\frac{4\,e^{-4}}{3} + \frac{8\,e^{-\frac{36}{25}}}{5} + \frac{8\,e^{-\frac{4}{25}}}{5} + \frac{8\,e^{-\frac{196}{25}}}{15} + \frac{16\,e^{-\frac{324}{25}}}{15} + \frac{8\,e^{-\frac{484}{25}}}{15} + \frac{16\,e^{-\frac{676}{25}}}{15} + \frac{4\,e^{-36}}{15} \tag{5}$$

$evalf(\%)$

$$1.767147796 \tag{6}$$

$a + 10 \cdot \Delta x$

$$6 \tag{7}$$



ApproximateInt(exp(-x^2), -2 .. 6, '*partition*' = 10, '*method*' = *simpson*, '*partitiontype*' = *normal*, '*output*' = '*value*', '*boxoptions*' = ['*filled*' = ['*transparency*' = .5]]);

$$\frac{4\,e^{-4}}{3}+\frac{8\,e^{-\frac{36}{25}}}{5}+\frac{8\,e^{-\frac{4}{25}}}{5}+\frac{8\,e^{-\frac{196}{25}}}{15}+\frac{16\,e^{-\frac{324}{25}}}{15}+\frac{8\,e^{-\frac{484}{25}}}{15}+\frac{16\,e^{-\frac{676}{25}}}{15}+\frac{4\,e^{-36}}{15} \tag{8}$$

evalf(%)

$$1.767147796 \tag{9}$$

$$\int_{-2}^{6} \exp(-x^2)\,dx$$

$$\frac{\mathrm{erf}(2)\sqrt{\pi}}{2}+\frac{\mathrm{erf}(6)\sqrt{\pi}}{2} \tag{10}$$

evalf(%)

$$1.768308316 \tag{11}$$

with(*Student*[*Calculus1*])

[*AntiderivativePlot*, *AntiderivativeTutor*, *ApproximateInt*, *ApproximateIntTutor*, *ArcLength*, *ArcLengthTutor*, *Asymptotes*, *Clear*, *CriticalPoints*, *CurveAnalysisTutor*, *DerivativePlot*, (12)

DerivativeTutor, *DiffTutor*, *Distance*, *ExtremePoints*, *FunctionAverage*, *FunctionAverageTutor*, *FunctionChart*, *FunctionPlot*, *GetMessage*, *GetNumProblems*, *GetProblem*, *Hint*, *InflectionPoints*, *IntTutor*, *Integrand*, *InversePlot*, *InverseTutor*, *LimitTutor*, *MeanValueTheorem*, *MeanValueTheoremTutor*, *NewtonQuotient*, *NewtonsMethod*, *NewtonsMethodTutor*, *PointInterpolation*, *RiemannSum*, *RollesTheorem*, *Roots*, *Rule*, *Show*, *ShowIncomplete*, *ShowSolution*, *ShowSteps*, *Summand*, *SurfaceOfRevolution*, *SurfaceOfRevolutionTutor*, *Tangent*, *TangentSecantTutor*, *TangentTutor*, *TaylorApproximation*, *TaylorApproximationTutor*, *Understand*, *Undo*, *VolumeOfRevolution*, *VolumeOfRevolutionTutor*, *WhatProblem*]