restart

$f := t \rightarrow \cos(t^2)$

$$t \rightarrow \cos(t^2) \quad \textbf{(1)}$$

evalf$(f(3))$

$$-0.9111302619 \quad \textbf{(2)}$$

with(*Student*[*Calculus1*])

[*AntiderivativePlot*, *AntiderivativeTutor*, *ApproximateInt*, *ApproximateIntTutor*, *ArcLength*, *ArcLengthTutor*, *Asymptotes*, *Clear*, *CriticalPoints*, *CurveAnalysisTutor*, *DerivativePlot*, *DerivativeTutor*, *DiffTutor*, *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*] **(3)**

RiemannSum$(f(t), t = 0.0..1, method = upper, output = value, partition = 100)$

$$0.3383500000 \quad \textbf{(4)}$$

$F := x \rightarrow RiemannSum(f(t), t = 0..x, method = upper, output = value, partition = 1000)$

$x \rightarrow$ *Student:-Calculus1:-RiemannSum*$(f(t), t = 0..x, method = upper, output = value, partition = 1000)$ **(5)**

$F(1)$

$$0.3337147341 \quad \textbf{(6)}$$

$F(2)$

$$0.4638088253 \quad \textbf{(7)}$$

$F(3)$

$$9.003437870 \quad \textbf{(8)}$$

$dx := .001$

$$0.001 \quad \textbf{(9)}$$

$$DF3 := \frac{(F(3 + dx) - F(3))}{dx}$$

$$-0.9057153000 \quad \textbf{(10)}$$