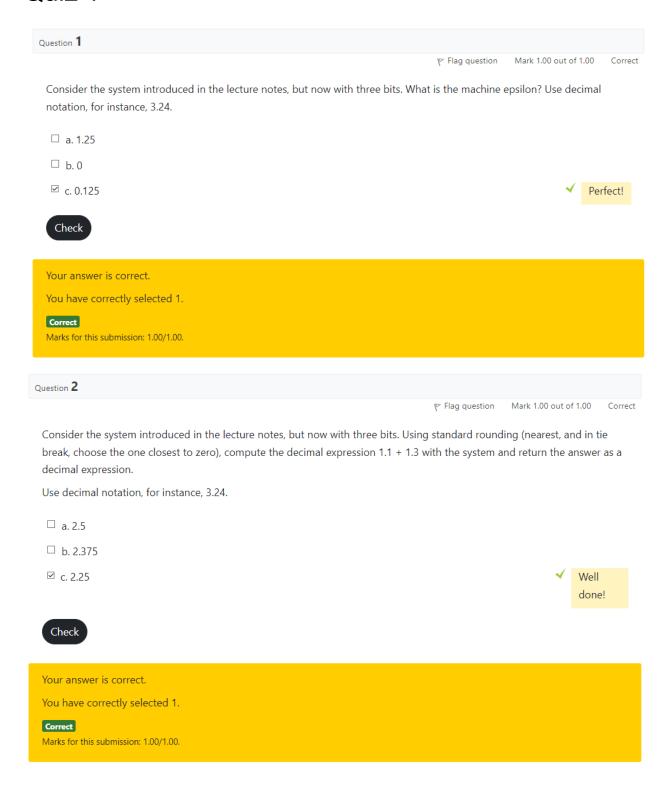
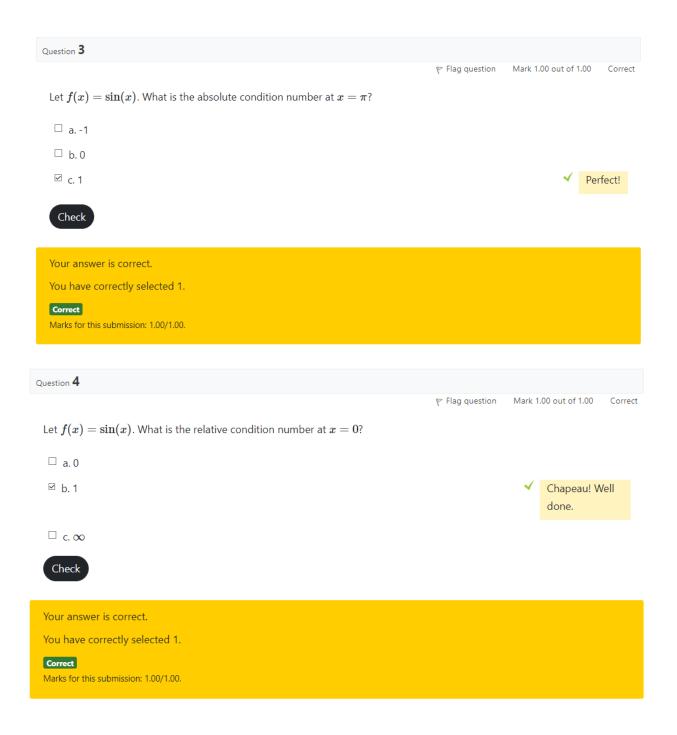
Quiz 1





Quiz 2

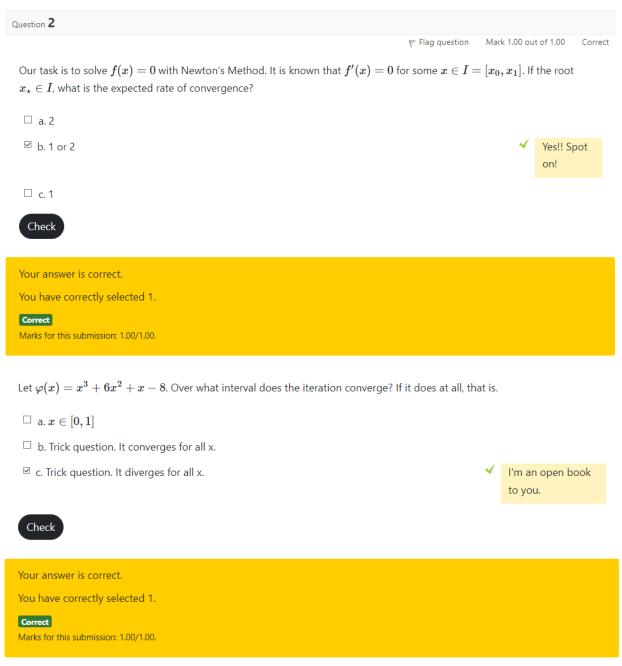
Question 1 Flag question Mark 1.00 out of 1.00 Correct An equation solver has converged and its error history is given below. What is the rate of convergence? [1.73205, 1.29904, 0.974279, 0.730709, 0.548032, 0.411024, 0.308268, 0.231201, 0.173401, 0.13005, 0.0975379, 0.0731534, 0.173401, 0.17 $0.0548651,\ 0.0411488,\ 0.0308616,\ 0.0231462,\ 0.0173596,\ 0.0130197,\ 0.0097648,\ 0.0073236,\ 0.0054927,\ 0.00411953,\ 0.0054927,\ 0.00411953,\ 0.0054927,\ 0.00411953,\ 0.00411488,\ 0.0073236,\ 0.0054927,\ 0.00411953,\ 0.004114888,\ 0.00411488,\ 0.00411488,\ 0.00411488,\ 0.00411488,\ 0.004148888,\ 0.004148880,\ 0.004148880,\ 0.004148880,$ 0.000231985, 0.000173989, 0.000130492, 0.0000978686, 0.0000734015, 0.0000550511, 0.0000412883, 0.0000309663, 0.0000734015, 0.0000734015, 0.0000734015, 0.0000734015, 0.0000734016, 0.0000746, $0.0000232247,\ 0.0000174185,\ 0.0000130639,\ 9.79792*10^{-}6,\ 7.34844*10^{-}6,\ 5.51133*10^{-}6,\ 4.1335*10^{-}6,\ 3.10012*10^{-}6,\ 5.51133*10^{-}6,\ 5.$ 2.32509*10^-6, 1.74382*10^-6, 1.30786*10^-6, 9.80898*10^-7, 7.35673*10^-7, 5.51755*10^-7, 4.13816*10^-7, 3.10362*10^-7, 2.32772*10^-7, 1.74579*10^-7, 1.30934*10^-7, 9.82005*10^-8, 7.36504*10^-8, 5.52378*10^-8, 4.14284*10^-8, 3.10713*10^-8] ☑ a. 1 It's remarkably stable 1. \Box b. $(1/2)(1+\sqrt{5})$ □ c. 2 Check Your answer is correct.

Use the below formula, where alpha is the rate of convergence

$$\alpha = \frac{\ln\left(\frac{e_{n+1}}{e_n}\right)}{\ln\left(\frac{e_n}{e_{n-1}}\right)}$$

You have correctly selected 1.

Marks for this submission: 1.00/1.00.



Just plug in x = any number, then get the result, and then plug in that result again. Do this repeatedly and we can see this iteration method seems to diverge for all x.

Question 4

Flag question Mark 1.00 out of 1.00 Correct

Consider $\varphi(x)=\sqrt{(8-x^3)/6}$. If it is given that the fixed point lies in I=[1,2], is it guaranteed that the iteration will converge for all initial guesses $x_0\in I$? What about $x_0=1.5$ specifically?

- \square a. Converges for all $x \in I$.
- oxdot b. Converges over a subinterval and $x_0=1.5$ leads to convergence.

Bingo! You nailed it!

 $\ \square$ c. Converges only for x=1.



Your answer is correct.

You have correctly selected 1.

Correct

Marks for this submission: 1.00/1.00.