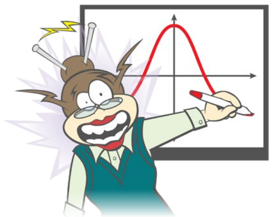
Mathematics Methods Foundation - worksheet



Each of the questions included here can be solved using the TI-Nspire CX CAS.

Question 1

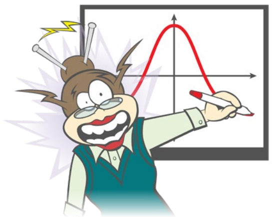
By applying the remainder theorem, find the remainder when $P(x) = -4x^3 + x^2 - 3x + 7$ is divided by $(x + 1)$.

Response:

Question 2

Solve $x^2 - 8x - 5 = 0$ by completing the square. Give answers in exact values.

Response:



Question 3

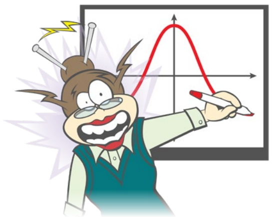
Use calculus techniques to determine the gradient of $f(x) = 4x^2 + 8x - 3$ at the point where $x = -2$.

Response:

Question 4

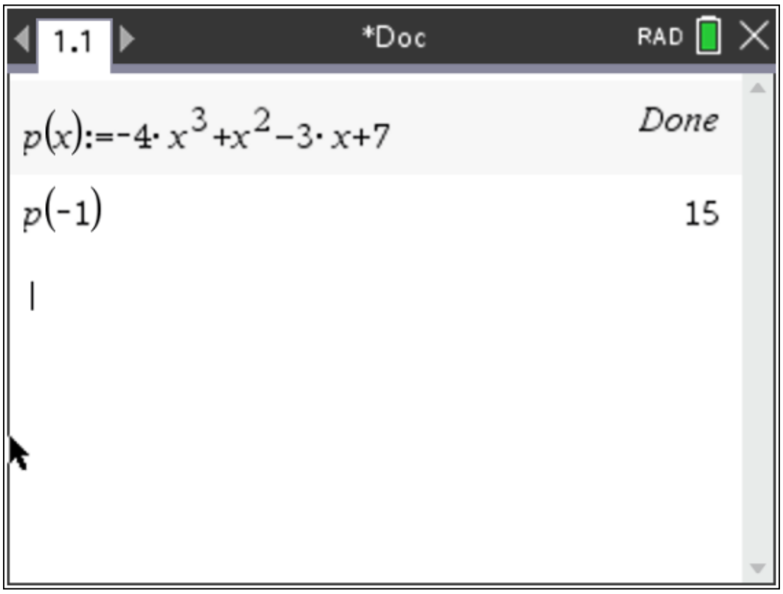
For the function $f(x) = \frac{2}{3}x^3 - x^2 - 4x + 2$, use calculus techniques to find any stationary points and determine their nature.

Response:

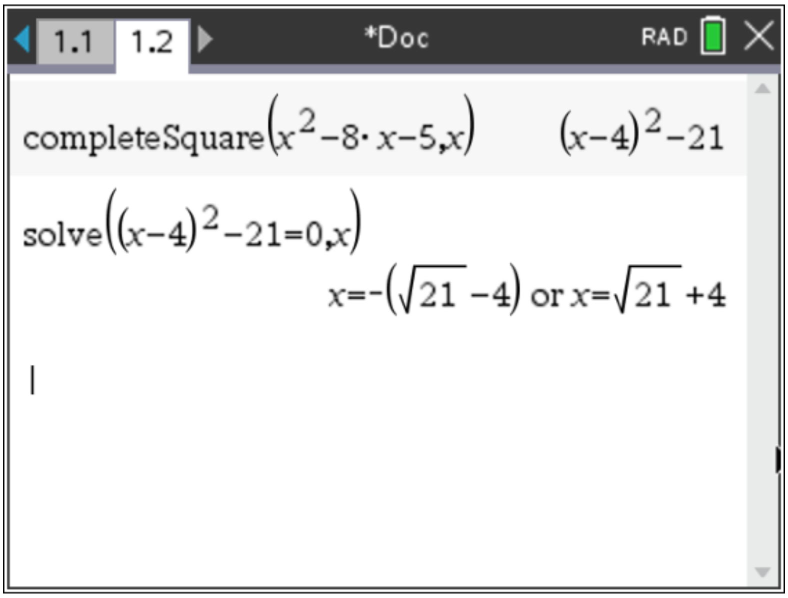


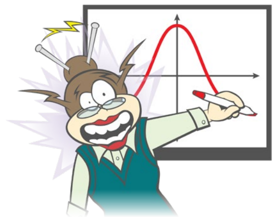
Solutions

Q1.

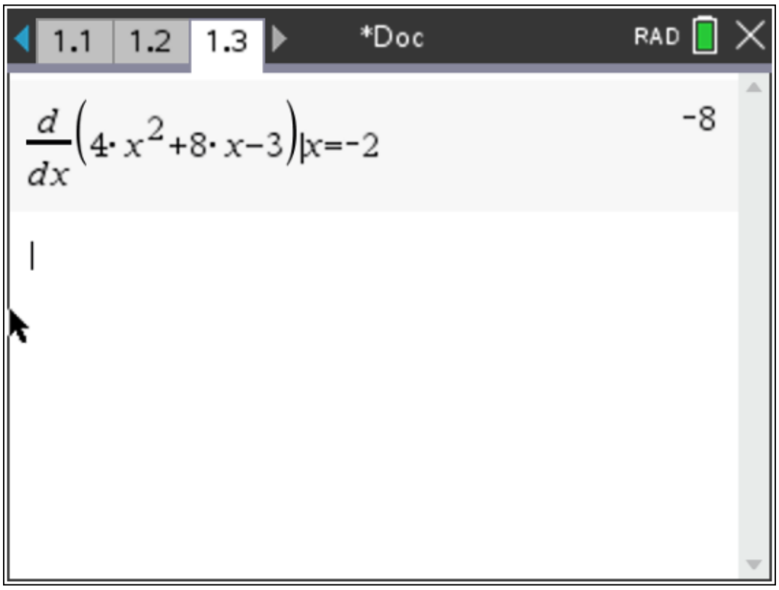


Q2.

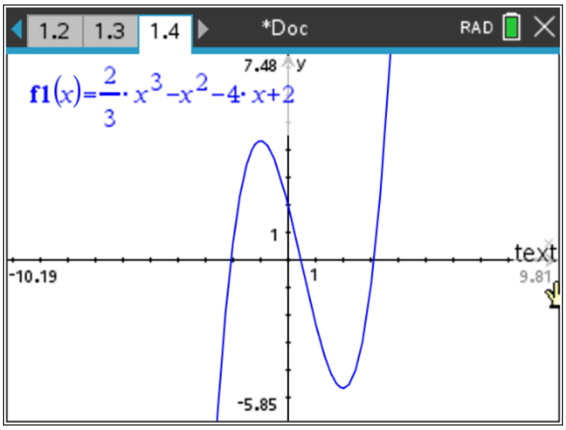


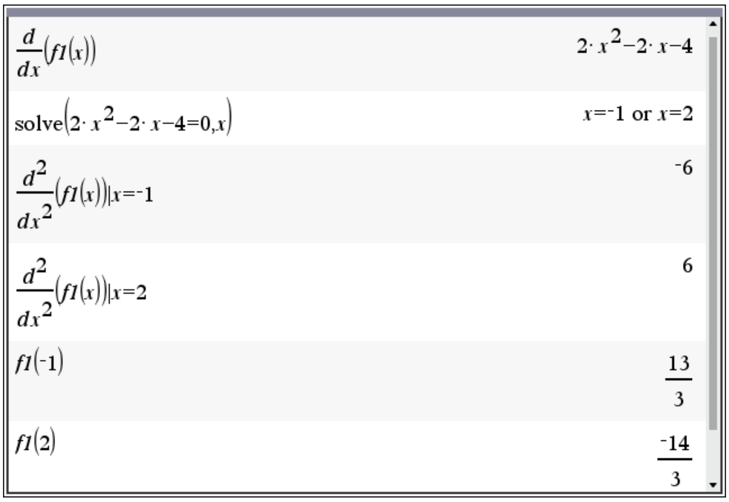


Q3.



Q4.





Hence a local maximum turning point at (-1, $\frac{13}{3}$) and a local minimum turning point at (2, $\frac{-14}{3}$).