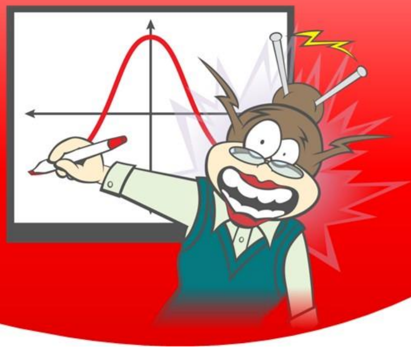
STUDENT REVISION SERIES



Mathematical Methods

Unit 1: Functions and Graphs

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

Scan the QR code or use the link:

Question 1

Solve using technology (a) $6-3a=27$ (b) $2b^2-5b-12=0$ (c) $x^3-6x^2-x+30=0$

Question 2

Solve the simultaneous equations $2m-3n=-1$ and $5m+2n=26$

Question 3

If $g(x)=4x-1$ and $h(x)=3x^2+2x-5$, evaluate $g(h(-2))$

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Question 4

Solve the following simultaneous equations $y^2 = x$ and $y = x - 2$

Question 5

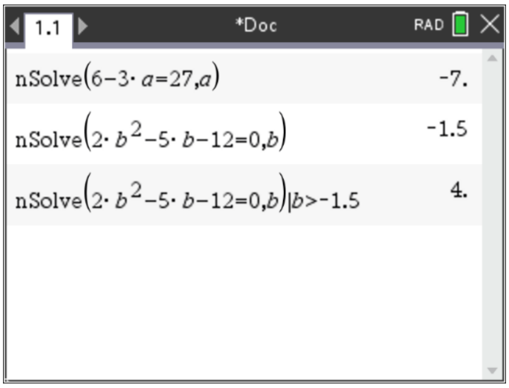
A section of a paddock is to be fenced off using an existing fence as part of the boundary. If 60 metres of fencing is available for the job, find the dimensions of the rectangular boundary that will give the maximum area.

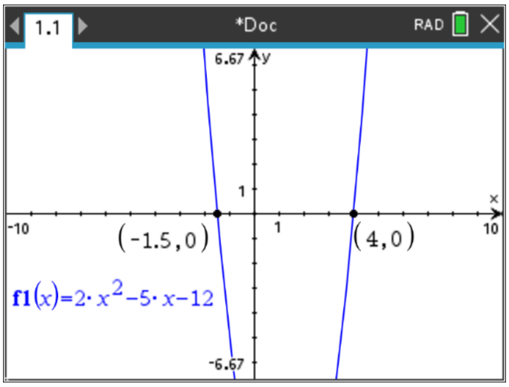
Question 6

Determine the values of a and b given that the polynomial $P(x) = x^3 + ax^2 + 2x + b$ is divisible by $(x - 1)$ and $(x + 2)$.

Answers

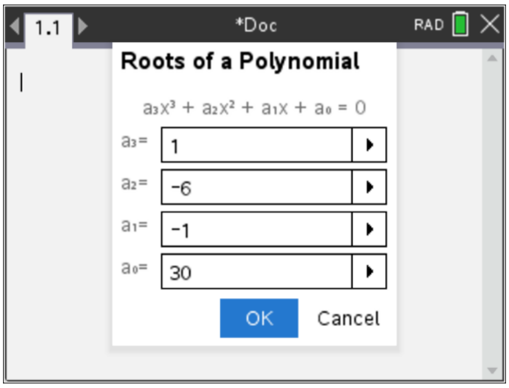
Question 1

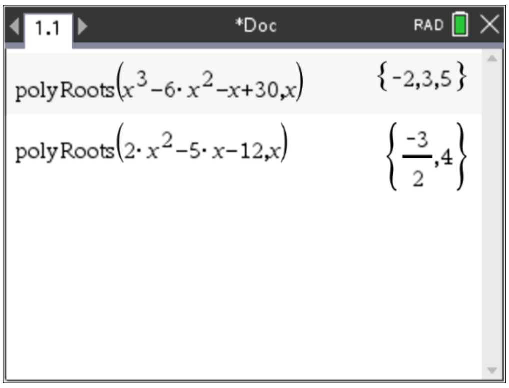




Numerically solve for (b) and test for solutions greater than or less than -1.5

Solve using Zero in a Graphs application

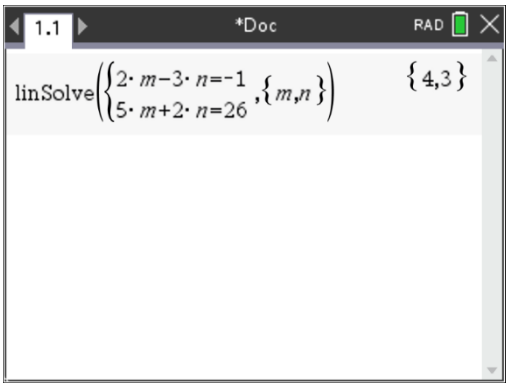


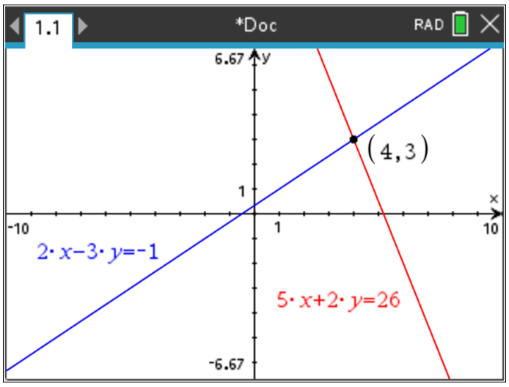


In a Calculator application, press menu and select Algebra, Polynomial Tools, Find Roots of Polynomial. Enter values of co-efficients and/or constant.

The solutions to part (b) are shown using the Polynomial Tools.

Question 2





In a Calculator application, press menu and select Algebra, Solve System of Linear Equations.

In a Graphs application, change the graph entry to a relation (press menu and select Graph Entry, Relation) and determine the point of intersection.

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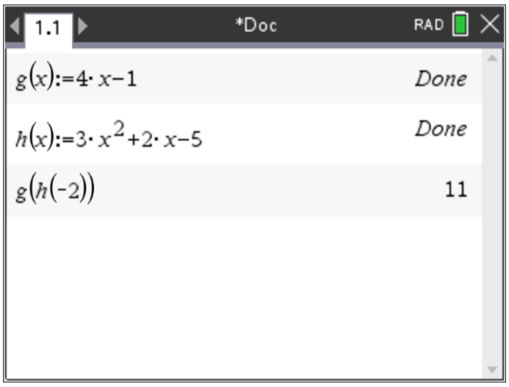
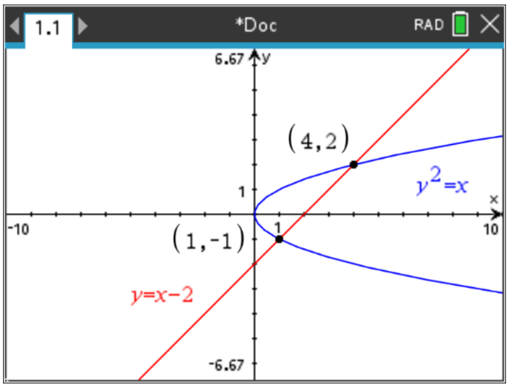
Question 3



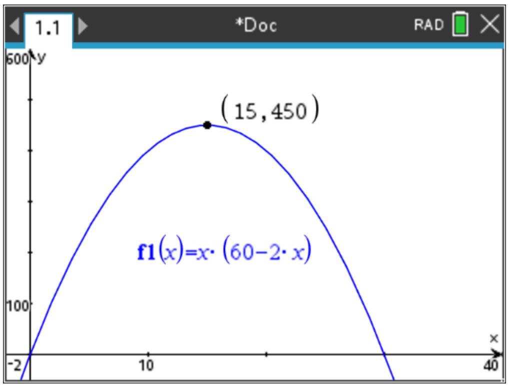
Question 4



In a Graphs application, change the graph entry to a relation (press (menu) and select Graph Entry, Relation) and enter both relations.

Press (menu) then select Geometry, Points & Lines, Intersection Points and click on both graphs.

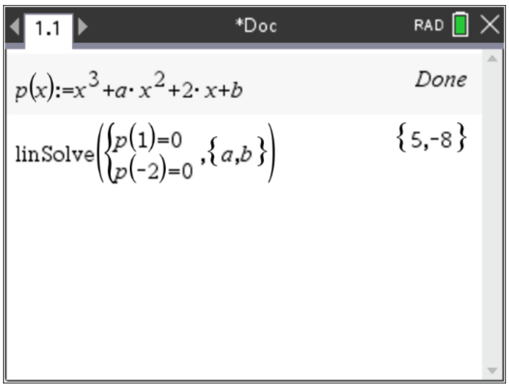
Question 5



In a Graphs application enter the function and change the window to see the graph.

Press (menu) then select Analyse Graph, Maximum.

Question 6



The factors are $x = 1$ and $x = -2$

In a Calculator application define the function (be careful to use a multiplication between a and x).

Press (menu) then select Algebra, Solve System of Linear Equations.

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