**Tutorial problems - 1**

1. Find the domain and range of the function:
2. Find the inverse of the function:
3. The point has coordinates and the point has coordinates .

Find the equation of the line , giving your answer in the form , where are integers.

the midpoint of is . Find the coordinates of . Write the equation of the line which passes through and which is perpendicular to .

1. Let and

Find .

Write down the -intercept and the coordinates of the vertex of the graph of .

1. A curve has equation and a line has equation

, where k is a constant.

Show that the x-coordinate of any point of intersection of the line and curve satisfies the equation .

Given that the line and the curve do not intersect. Show that

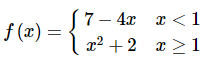
. Find the possible values of .

1. Calculate the limits:

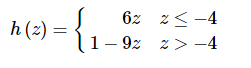
1. Given the function



Evaluate the following limits, if they exist.



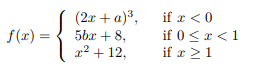
1. Given the function



Evaluate the following limits, if they exist.



1. Find the values of the parameters a and b such that the function



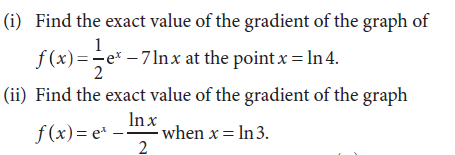
is continuous at all the points in its domain.

1. Sketch the graph of the function and determine the points of discontinuity for the function:
2. Given

.

Solve the equation

1. Answer the following questions:



1. Write the equation of tangent line to the curve

at the point .

1. Find the equation of normal to the curve when .
2. Let be a cubic polynomial function. Given that ,

and . Find .

1. Differentiate the given functions: