Name: _____

Quiz 15 ♡

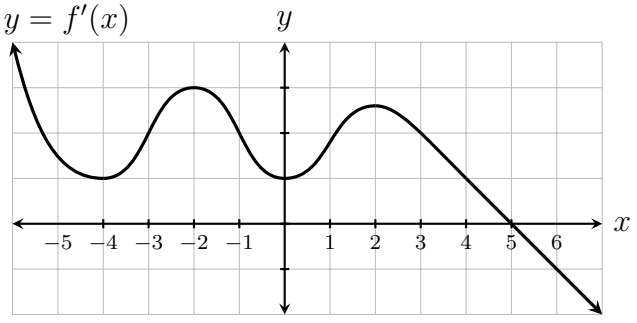
MATH 200
November 1, 2021

1. (10 points) This problem concerns the function $f(x) = x^3 + 3x^2 + 10$.

   (a) Find the intervals on which f increases and on which it decreases.

   (b) Use your answer from part (a) to identify the locations (x values) of any local extrema of f.

2. (10 points) The graph of the **derivative** $f'(x)$ of a function f is shown below.



   (a) State the critical points of f.

   (b) State the interval(s) on which f increases.

   (c) State the interval(s) on which f decreases.

   (d) Does f have a local maximum? Where?.

   (e) Does f have a local minimum? Where?.

Name: _____

Quiz 15 ♣

MATH 200
November 1, 2021

1. (10 points) This problem concerns the function $f(x) = x^2e^x + 2$.

   (a) Find the intervals on which f increases and on which it decreases.

   (b) Use your answer from part (a) to identify the locations (x values) of any local extrema of f.

2. (10 points) The graph of the **derivative** $f'(x)$ of a function f is shown below.

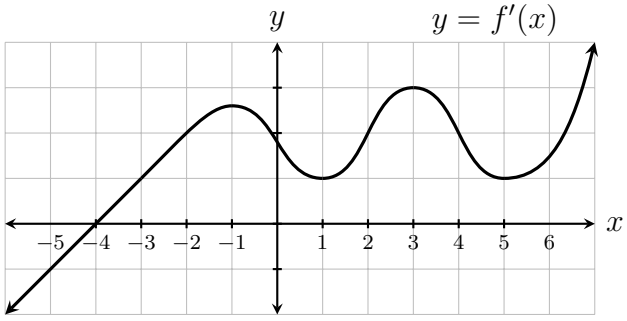
   (a) State the critical points of f.

   (b) State the interval(s) on which f increases.

   (c) State the interval(s) on which f decreases.

   (d) Does f have a local maximum? Where?.

   (e) Does f have a local minimum? Where?.



Name: _____

Quiz 15 ♢

MATH 200
November 1, 2021

1. (10 points) This problem concerns the function $f(x) = e^{x^3-3x}$.

   (a) Find the intervals on which f increases and on which it decreases.

   (b) Use your answer from part (a) to identify the locations (x values) of any local extrema of f.

2. (10 points) The graph of the **derivative** $f'(x)$ of a function f is shown below.

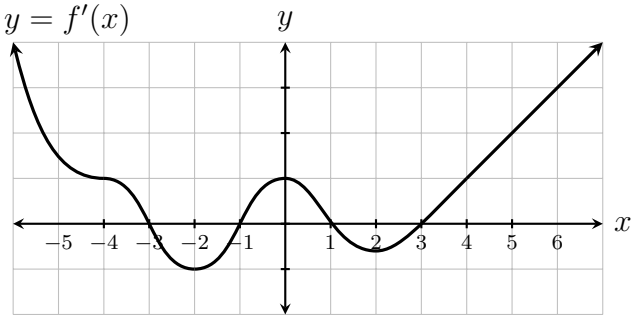
   (a) State the critical points of f.

   (b) State the interval(s) on which f increases.

   (c) State the interval(s) on which f decreases.

   (d) Does f have a local maximum? Where?.

   (e) Does f have a local minimum? Where?.



Name: _____

Quiz 15 ♠

MATH 200
November 1, 2021

1. (10 points) This problem concerns the function $f(x) = 5x^4 + 20x^3 + 10$.

   (a) Find the intervals on which f increases and on which it decreases.

   (b) Use your answer from part (a) to identify the locations (x values) of any local extrema of f.

2. (10 points) The graph of the **derivative** $f'(x)$ of a function f is shown below.

   (a) State the critical points of f.

   (b) State the interval(s) on which f increases.

   (c) State the interval(s) on which f decreases.

   (d) Does f have a local maximum? Where?.

   (e) Does f have a local minimum? Where?.