100/180 Quiz 6.1	End of week 12	Grade:	
First Name:	Last Name:		
Student-No:	Section:		
Very short answer que	estions		
1 2 marks Fach part is we	rth 1 marks. Plaasa write your answ	vers in the boyos	

- 1. 2 marks Each part is worth 1 marks. Please write your answers in the boxes. Consider the function,  $h(x) = 2x^3 - 6x^2 + 2$ .
  - (a) What are the coordinates of the **local** maximum of h(x)?
  - (b) What are the coordinates of the **local** minimum of h(x)?

Answer:

Answer:

#### Short answer questions — you must show your work

- 2. 4 marks Each part is worth 2 marks.
  - (a) Find the intervals where  $f(x) = \arcsin(x) + 2\sqrt{1-x^2}$  is increasing.

(b) Let  $f(x) = (x - \pi)^2 - \sin(x) + \cos(x)$ . Show that there exists a real number c such that f'(c) = 0.

3. 4 marks Find the global maximum and the global minimum for  $f(x) = 3x^4 - 4x^3 + 3$  on the interval [-1, 2].

100/180 Quiz 6.2	End of week 12	Grade:	
First Name:	Last Name:		
Student-No:	Section:		
Very short answer qu	estions		
1. 2 marks Each part is we	orth 1 marks. Please write your answ	wers in the boxes.	
Consider the function, $h($	$x) = x^3 - 3x + 5.$		
		_	

- (a) What are the coordinates of the **local** maximum of h(x)?
- (b) What are the coordinates of the **local** minimum of h(x)?

Answer:

#### Short answer questions — you must show your work

- 2. 4 marks Each part is worth 2 marks.
  - (a) Find the intervals where  $f(x) = \frac{\sqrt{x}}{x+6}$  is increasing.

(b) Let  $f(x) = x^2 - 2\pi x - \sin(x)$ . Show that there exists a real number c such that f'(c) = 0.

Answer:

3. 4 marks Find the global maximum and the global minimum for  $f(x) = x^3 - 6x^2 + 2$  on the interval [3,5].

100/180 Quiz 6.3	End of week 12	Grade:	
First Name:	Last Name:		
Student-No:	Section:		
Very short answer qu	lestions		
1. 2 marks Each part is w	orth 1 marks. Please write your answ	vers in the boxes.	
Consider the function, $h($	$f(x) = x^3 - 12x + 4.$		
(a) What are the coordi	nates of the <b>local</b> maximum of $h(x)$	?	

(b) What are the coordinates of the **local** minimum of h(x)?

Answer:

Answer:

## Short answer questions — you must show your work

- 2. 4 marks Each part is worth 2 marks.
  - (a) Find the intervals where  $f(x) = \frac{\sqrt{x-1}}{2x+4}$  is increasing.

(b) Let  $f(x) = x^2 - 3\pi x + \sin(x)$ . Show that there exists a real number c such that f'(c) = 0.

3. 4 marks Find the global maximum and the global minimum for  $f(x) = x^5 - 5x - 10$  on the interval [0, 2].

100/180 Quiz 6.4	End of week 12	Grade:
First Name:	Last Name:	
Student-No:	Section:	
Very short answer qu	lestions	
1. 2 marks Each part is w	orth 1 marks. Please write your answ	vers in the boxes.
Consider the function, $h($	$f(x) = 2x^3 - 6x + 2.$	
(a) What are the coordi	nates of the <b>local</b> maximum of $h(x)$	?
	Ans	swer:

(b) What are the coordinates of the **local** minimum of h(x)?

Answer:

#### Short answer questions — you must show your work

- 2. 4 marks Each part is worth 2 marks.
  - (a) Find the intervals where  $f(x) = xe^{-x^2/2}$  is increasing.

(b) Let  $f(x) = (x + \pi)^2 + \cos(x)$ . Show that there exists a real number c such that f'(c) = 0.

3. 4 marks Find the global maximum and the global minimum for  $f(x) = 4x^3 - 6x^2 + 3$  on the interval [-1, 2].