1.(1 pt) Enter a T or an F in each answer space below to indicate whether the corresponding statement is true or false.

A good technique is to think of several examples, especially examples which might show that the statement is false!.

For reference you can find some definitions **here** .

You must get all of the answers correct to receive credit.

__ 1. The sequence 1, -1, 1, -1, 1, -1, ... does not have a convergent subsequence.
__ 2. The sequence of rational numbers 3.1, 3.14, 3.141, 3.14159, ... which approximates the ratio of the circumference of a circle and its diameter, has a rational number as its limit point.
__ 3. The sequence 1, 2, 3, 4, ... has no finite limit.
__ 4. Every bounded sequence converges to a limit point.

2.(1 pt) Enter a T or an F in each answer space below to indicate whether the corresponding statement is true or false.

A good technique is to think of several examples, especially examples which might show that the statement is false!

For reference you can find some definitions **here** .

You must get all of the answers correct to receive credit.

__ 1. Every differentiable function on the interval $[-2,2)$ must have a minimum.
__ 2. Every continuous function on the interval $[3,6]$ must have both a maximum and a minimum.
__ 3. Every continuous function on the interval $(1,3]$ must have a maximum.
__ 4. Every differentiable function on the interval $[3,4)$ must have both a maximum and a minimum.

3.(1 pt) Enter a T or an F in each answer space below to indicate whether the corresponding statement is true or false.

A good technique is to think of several examples, especially examples which might show that the statement is false!

For reference you can find some definitions **here** .

You must get all of the answers correct to receive credit.

__ 1. If a function is increasing near a point a then its linear approximation at a cannot be decreasing.
__ 2. If a differentiable function has a maximum value then its domain must be a bounded, closed interval.

4.(1 pt) Enter a T or an F in each answer space below to indicate whether the corresponding statement is true or false.

A good technique is to think of several examples, especially examples which might show that the statement is false!

For reference you can find some definitions **here** .

You must get all of the answers correct to receive credit.

__ 1. If the linear approximation of a differentiable function is decreasing at a point a then the function could be constant near the point a.
__ 2. If $f(x)$ is a continuous function and the sequence $f(a_1), f(a_2), f(a_3), ...$ converges to a finite limit, then the sequence $a_1, a_2, a_3, ...$ also converges to a limit.
__ 3. Every continuous function whose domain is a bounded, closed interval has a maximum value.
__ 4. Every differentiable function is continuous.

5.(1 pt) Enter a T or an F in each answer space below to indicate whether the corresponding statement is true or false.

A good technique is to think of several examples, especially examples which might show that the statement is false!

For reference you can find some definitions **here** .

You must get all of the answers correct to receive credit.

__ 1. If the linear approximation of a differentiable function is increasing at a point a then the function is also increasing near the point a.
__ 2. Every continuous function whose domain is a bounded, closed interval and which has a maximum value also has a minimum value.
__ 3. If a continuous function $f(x)$ has a maximum value on an interval then the function $-f(x)$ has a minimum on that same interval.
__ 4. If $f(x)$ is a continuous function and the sequence $f(a_1), f(a_2), f(a_3), ...$ converges to a finite limit, then the sequence $a_1, a_2, a_3, ...$ also converges to a limit.
__ 5. If $f(x)$ is a continuous function and the sequence $a_1, a_2, a_3, ...$ converges to a finite limit, then the sequence $f(a_1), f(a_2), f(a_3), ...$ also converges to a limit.
__ 6. Every differentiable function has a maximum value.
__ 7. If a continuous function has a maximum value then its domain must be a bounded, closed interval.
__ 8. If a differentiable function $f(x)$ has a maximum value on an interval then the function $-f(x)$ has a minimum on that same interval.