

1. (2 points each) Circle “True” or “False” for each of the following problems. Circle “True” only if the statement is *always* true. No explanation is necessary.

(a) Every continuous function is differentiable.

True      False

(b) If  $f'(x) > 0$  for all  $x$  in the interval  $(a, b)$ , then  $f$  is increasing on the interval  $(a, b)$ .

True      False

(c) By definition, the instantaneous velocity is equal to a difference quotient.

True      False

(d) Every rational function has a vertical asymptote.

True      False

(e) If a function is not continuous at a point, then it is not defined at that point.

True      False

(f) If a function  $f$  is decreasing on an interval, then  $f'$  is decreasing on that interval.

True      False