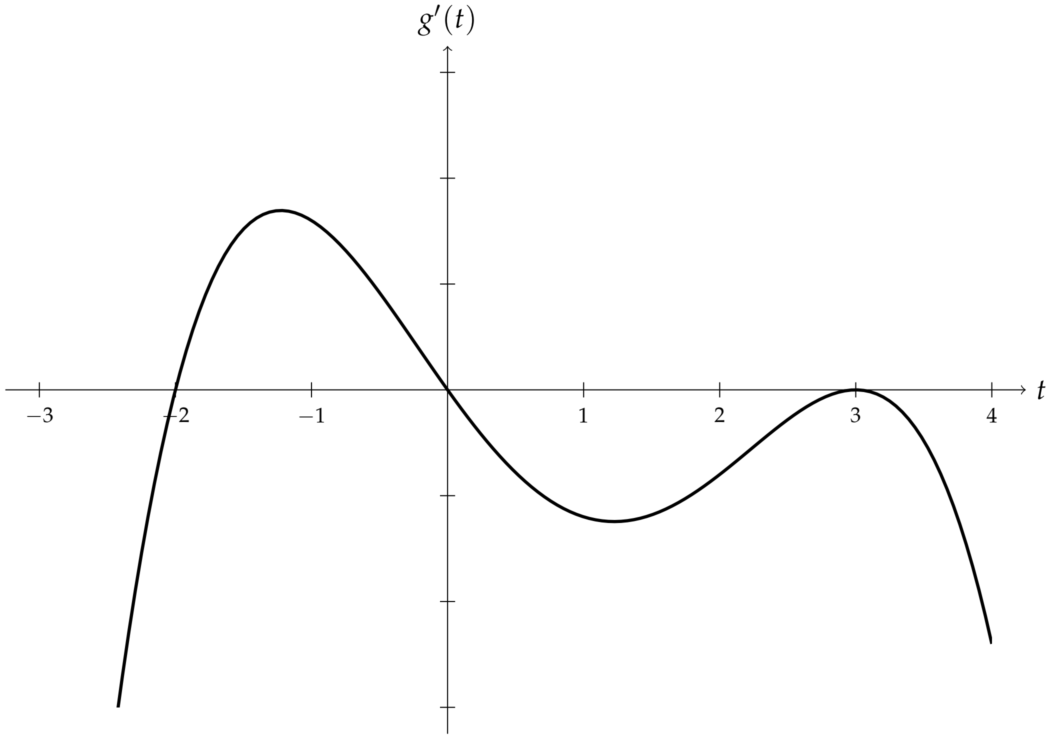
Quiz #8: Monday, Nov 7

Name: Solution Key Recitation R02 (M)

Below is the graph of the *derivative* $g'(t)$ of a function $g(t)$.



What t-values are critical points of $g(t)$? Which of them are local minima, local maxima, or neither?

Solution: To find the critical points of $g(t)$, we look for where $g'(t) = 0$. From the graph, this occurs at $t = -2$, $t = 0$, and $t = 3$.

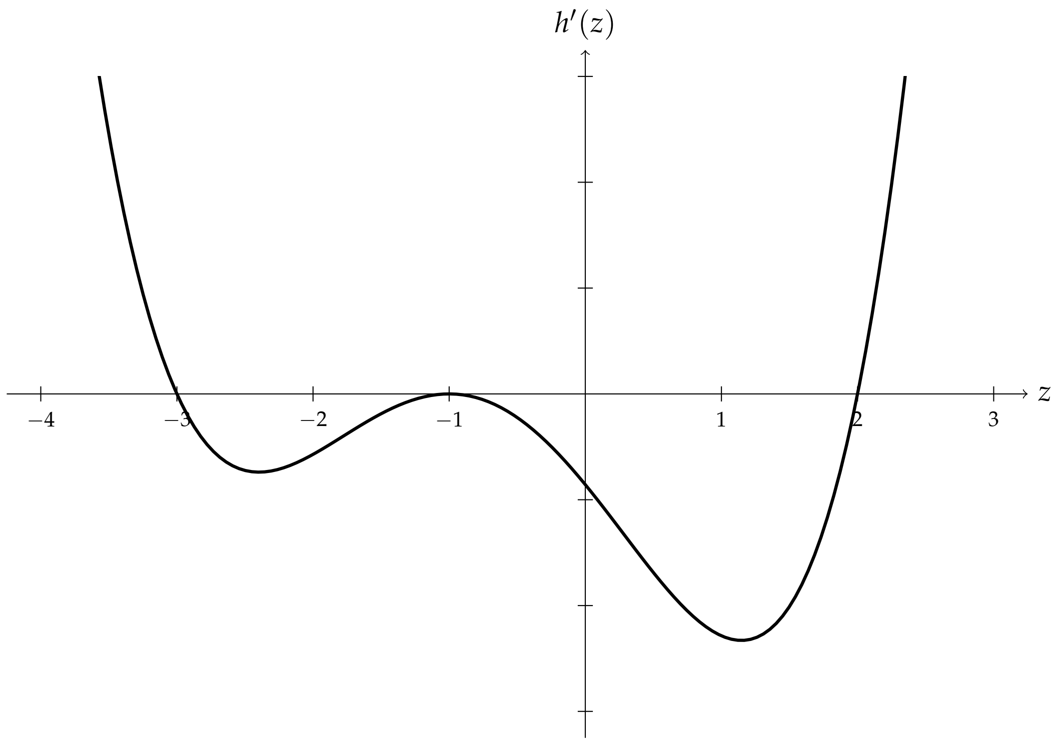
We use the first derivative test to characterize these critical points:

- At $t = -2$, the sign of $g'(t)$ changes from negative to positive, so $g(t)$ has a local minimum there.
- At $t = 0$, the sign of $g'(t)$ changes from positive to negative, so $g(t)$ has a local maximum there.
- At $t = 3$, there is no change in the sign of $g'(t)$, so $g(t)$ has no local extremum there.

Quiz #8: Monday, Nov 7

Name: Solution Key Recitation R02 (M)

Below is the graph of the *derivative* $h'(z)$ of a function $h(z)$.



What z-values are critical points of $h(z)$? Which of them are local minima, local maxima, or neither?

Solution: To find the critical points of $h(z)$, we look for where $h'(z) = 0$. From the graph, this occurs at $z = -3$, $z = -1$, and $z = 2$.

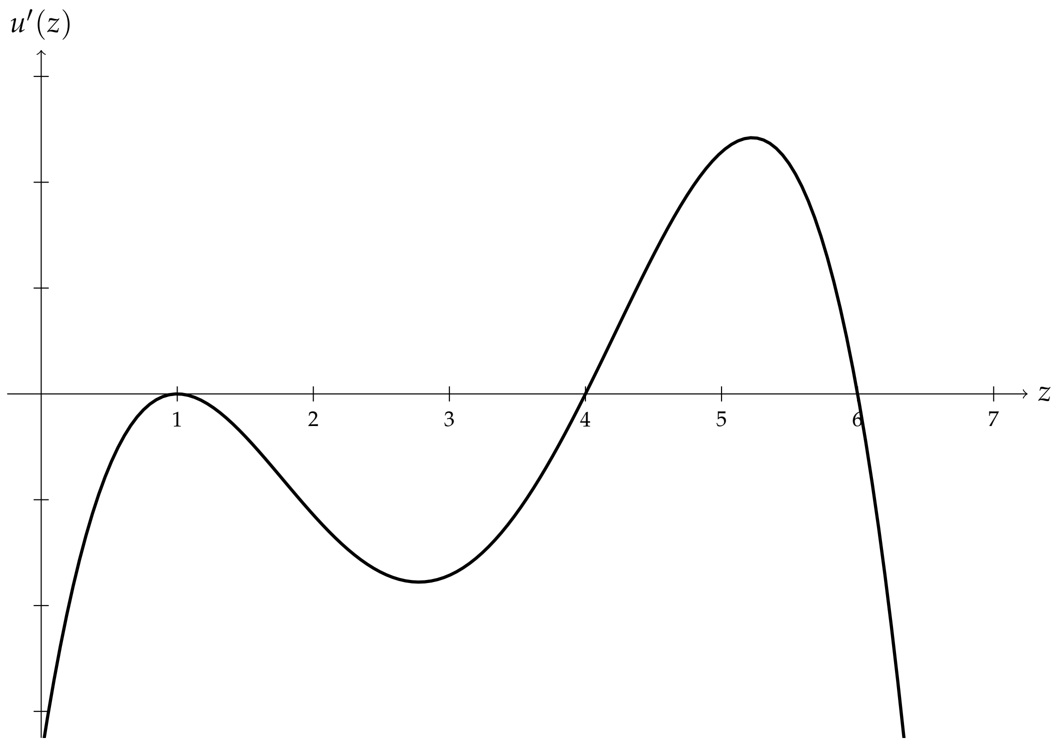
We use the first derivative test to characterize these critical points:

- At $z = -3$, the sign of $h'(z)$ changes from positive to negative, so $h(z)$ has a local maximum there.
- At $z = -1$, there is no change in the sign of $h'(z)$, so $h(z)$ has no local extremum there.
- At $z = 2$, the sign of $h'(z)$ changes from negative to positive, so $h(z)$ has a local minimum there.

Quiz #8: Tuesday, Nov 8

Name: Solution Key Recitation R04 (Tu)

Below is the graph of the *derivative* $u'(z)$ of a function $u(z)$.



What z-values are critical points of $u(z)$? Which of them are local minima, local maxima, or neither?

Solution: To find the critical points of $u(z)$, we look for where $u'(z) = 0$. From the graph, this occurs at $z = 1$, $z = 4$, and $z = 6$.

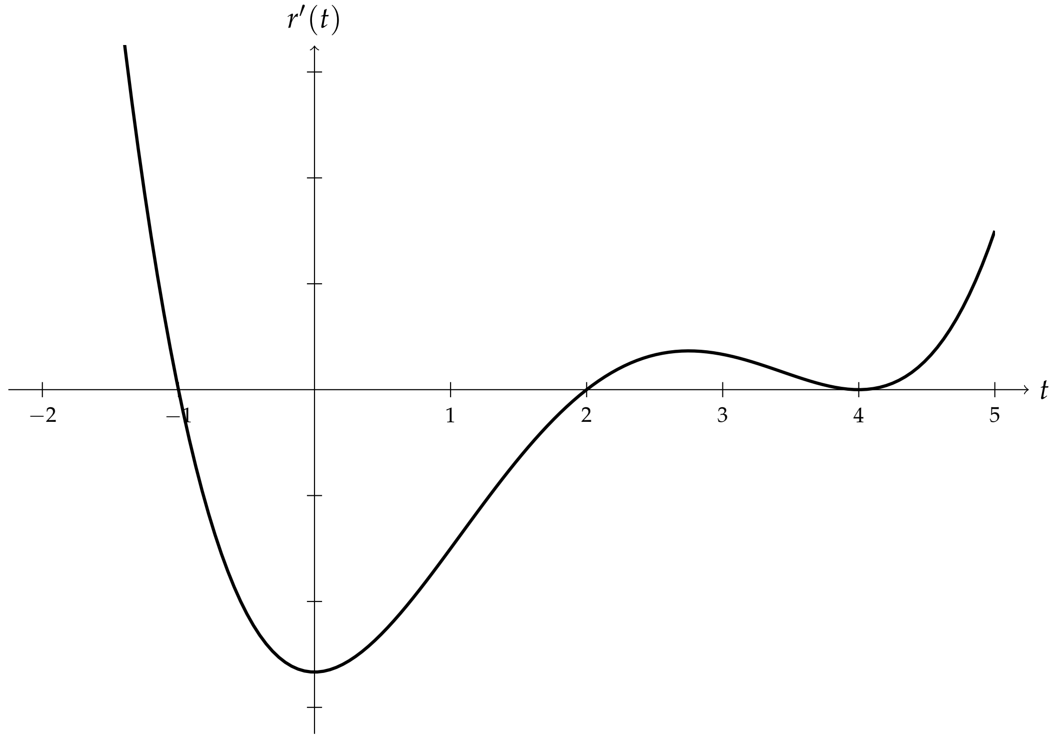
We use the first derivative test to characterize these critical points:

- At $z = 1$, there is no change in the sign of $u'(z)$, so $u(z)$ has no local extremum there.
- At $z = 4$, the sign of $u'(z)$ changes from negative to positive, so $u(z)$ has a local minimum there.
- At $z = 6$, the sign of $u'(z)$ changes from positive to negative, so $u(z)$ has a local maximum there.

Quiz #8: Tuesday, Nov 8

Name: Solution Key Recitation R04 (Tu)

Below is the graph of the *derivative* $r'(t)$ of a function $r(t)$.



What t-values are critical points of $r(t)$? Which of them are local minima, local maxima, or neither?

Solution: To find the critical points of $r(t)$, we look for where $r'(t) = 0$. From the graph, this occurs at $t = -1$, $t = 2$, and $t = 4$.

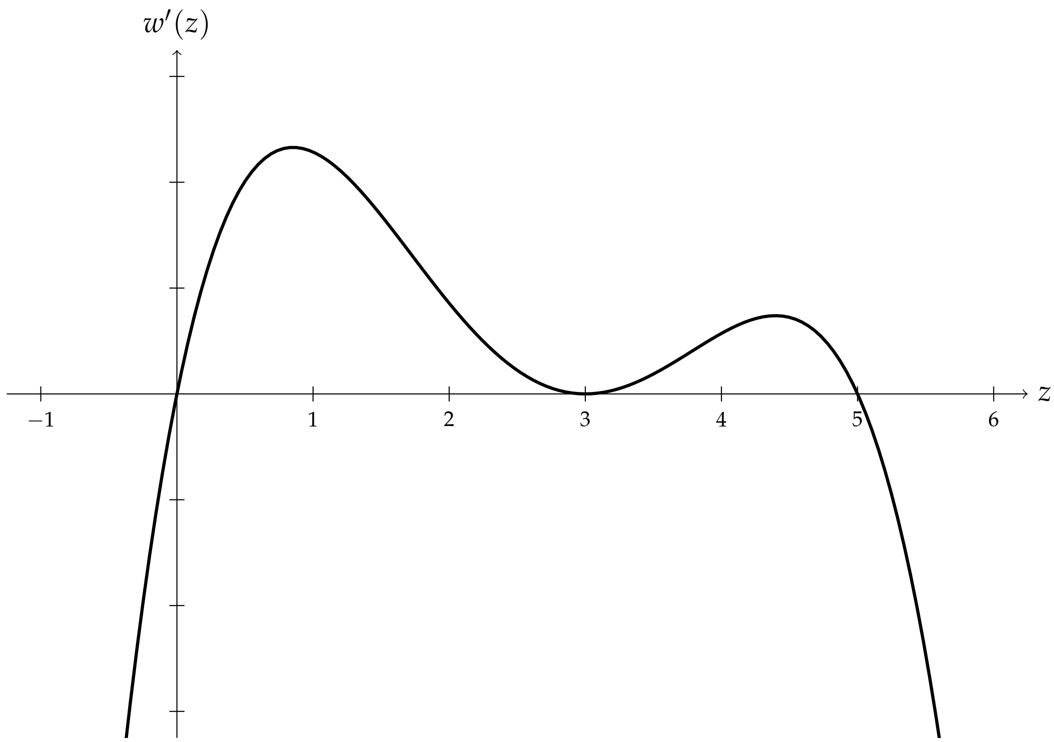
We use the first derivative test to characterize these critical points:

- At $t = -1$, the sign of $r'(t)$ changes from positive to negative, so $r(t)$ has a local maximum there.
- At $t = 2$, the sign of $r'(t)$ changes from negative to positive, so $r(t)$ has a local minimum there.
- At $t = 4$, there is no change in the sign of $r'(t)$, so $r(t)$ has no local extremum there.

Quiz #8: Wednesday, Nov 9

Name: Solution Key Recitation R03 (W)

Below is the graph of the *derivative* $w'(z)$ of a function $w(z)$.



What z-values are critical points of $w(z)$? Which of them are local minima, local maxima, or neither?

Solution: To find the critical points of $w(z)$, we look for where $w'(z) = 0$. From the graph, this occurs at $z = 0$, $z = 3$, and $z = 5$.

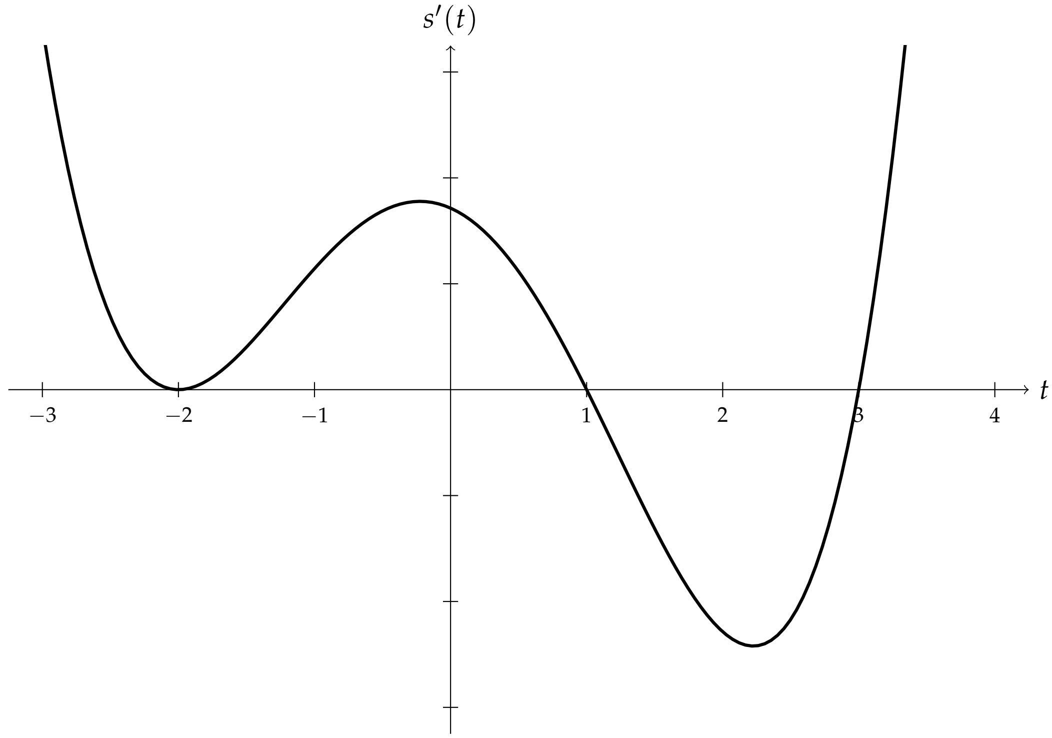
We use the first derivative test to characterize these critical points:

- At $z = 0$, the sign of $w'(z)$ changes from negative to positive, so $h(z)$ has a local minimum there.
- At $z = 3$, there is no change in the sign of $w'(z)$, so there is no local extremum there.
- At $z = 5$, the sign of $w'(z)$ changes from positive to negative, so $h(z)$ has a local maximum there.

Quiz #8: Wednesday, Nov 9

Name: Solution Key Recitation R03 (W)

Below is the graph of the *derivative* $s'(t)$ of a function $s(t)$.



What t-values are critical points of $s(t)$? Which of them are local minima, local maxima, or neither?

Solution: To find the critical points of $s(t)$, we look for where $s'(t) = 0$. From the graph, this occurs at $t = -2$, $t = 1$, and $t = 3$.

We use the first derivative test to characterize these critical points:

- At $t = -2$, there is no change in the sign of $s'(t)$, so $s(t)$ has no local extremum there.
- At $t = 1$, the sign of $s'(t)$ changes from positive to negative, so $s(t)$ has a local maximum there.
- At $t = 3$, the sign of $s'(t)$ changes from negative to positive, so $s(t)$ has a local minimum there.