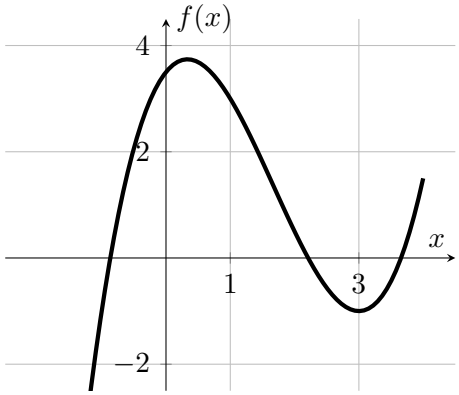
MATH 131 **Learning Target 6 Quiz** Fall 2025

Name: _____

1. The function f is graphed below. Use the graph to determine whether the first or second derivatives of f are positive, negative, zero at the given points. Briefly explain your answers.



$f'(1)$ is:
because:

$f''(1)$ is:
because:

$f'(3)$ is:
because:

$f''(3)$ is:
because:

2. The function g has a **derivative** g' with values given in the following table. Use the table to describe the behavior of g, g' and the g''. That is, can you say whether either of these are positive/negative, increasing/decreasing, or concave up/down? Briefly explain your answers.

x	0	1	2	3	4
$g'(x)$	- 2	-0.5	0.5	1	1.25

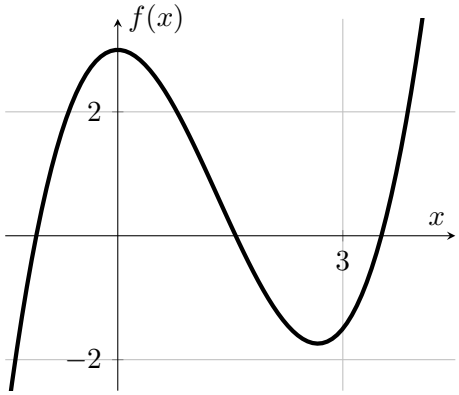
(a) What can you say about $g'(2)$ (which the table says has positive value 0.5)? Is g' increasing, decreasing, or neither at $x = 2$?

(b) What can you say about $g''(2)$?

(c) What can you say about $g(2)$, the original function whose derivative is given in the table? (You can determine two of the three characteristics.)

Name: _____

1. The function f is graphed below. Use the graph to determine whether the first or second derivatives of f are positive, negative, zero at the given points (circle the correct answer). Justify your answer by filling in the blanks.



$f'(0)$ is: positive / negative / zero

because near $x = 0$, $f(x)$ is _____

$f''(0)$ is: positive / negative / zero

because near $x = 0$, $f(x)$ is _____

$f'(3)$ is: positive / negative / zero

because near $x = 3$, $f(x)$ is _____

$f''(3)$ is: positive / negative / zero

because near $x = 3$, $f(x)$ is _____

2. The function g has a **derivative** g' with values given in the following table. Circle the characteristics of g, g', and g'' that you can conclude from the table at the specified point.

x	0	1	2	3	4
$g'(x)$	3	2	1.5	1	0.75

(a) What can you conclude about $g'(2)$?

$g'(2)$ is: positive / negative / zero / sign can't be determined.

$g'(2)$ is: increasing / decreasing / flat / direction can't be determined.

(b) What can you say about $g''(2)$?

$g''(2)$ is: positive / negative / zero / sign can't be determined.

(c) What can you say about $g(2)$, the original function whose derivative is given in the table?

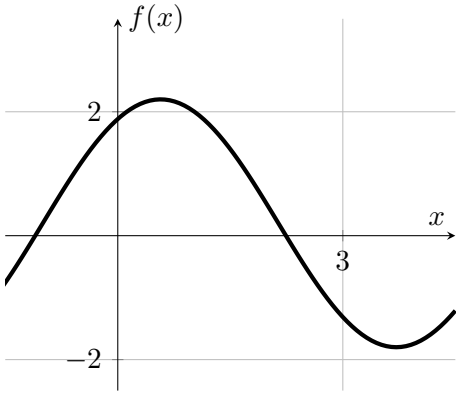
$g(2)$ is: positive / negative / zero / sign can't be determined.

$g(2)$ is: increasing / decreasing / flat / direction can't be determined.

$g(2)$ is: concave up / concave down / linear / shape can't be determined.

Name: _____

1. The function f is graphed below. Use the graph to determine whether the first or second derivatives of f are positive, negative, zero at the given points (circle the correct answer). Justify your answer by filling in the blanks.



$f'(0)$ is: positive / negative / zero

because near $x = 0$, $f(x)$ is _____

$f''(0)$ is: positive / negative / zero

because near $x = 0$, $f(x)$ is _____

$f'(3)$ is: positive / negative / zero

because near $x = 3$, $f(x)$ is _____

$f''(3)$ is: positive / negative / zero

because near $x = 3$, $f(x)$ is _____

2. The function g has a **derivative** g' with values given in the following table. Circle the characteristics of g, g', and g'' that you can conclude from the table at the specified point.

x	0	1	2	3	4
$g'(x)$	0.5	-3	-2.5	-1	0

(a) What can you conclude about $g'(3)$?

$g'(3)$ is: positive / negative / zero / sign can't be determined.

$g'(3)$ is: increasing / decreasing / flat / direction can't be determined.

(b) What can you say about $g''(3)$?

$g''(3)$ is: positive / negative / zero / sign can't be determined.

(c) What can you say about $g(3)$, the original function whose derivative is given in the table?

$g(3)$ is: positive / negative / zero / sign can't be determined.

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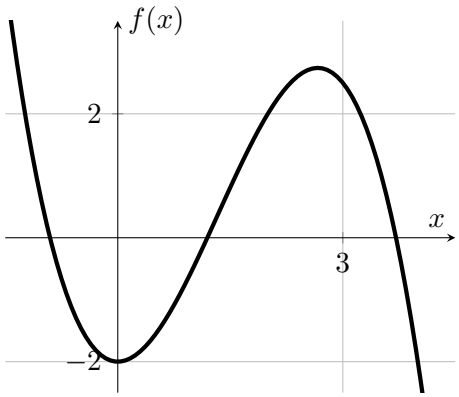

$f'(0)$ is: positive / negative / zero

because near $x = 0$, $f(x)$ is _____

$f''(0)$ is: positive / negative / zero

because near $x = 0$, $f(x)$ is _____

$f'(3)$ is: positive / negative / zero

because near $x = 3$, $f(x)$ is _____

$f''(3)$ is: positive / negative / zero

because near $x = 3$, $f(x)$ is _____

2. The function g has a **derivative** g' with values given in the following table. Circle the characteristics of g, g', and g'' that you can conclude from the table at the specified point.

x	0	1	2	3	4
$g'(x)$	1	0	-1	-2	-3

(a) What can you conclude about $g'(2)$?

$g'(2)$ is: positive / negative / zero / sign can't be determined.

$g'(2)$ is: increasing / decreasing / flat / direction can't be determined.

(b) What can you say about $g''(2)$?

$g''(2)$ is: positive / negative / zero / sign can't be determined.

(c) What can you say about $g(2)$, the original function whose derivative is given in the table?

$g(2)$ is: positive / negative / zero / sign can't be determined.

$g(2)$ is: increasing / decreasing / flat / direction can't be determined.

$g(2)$ is: concave up / concave down / linear / shape can't be determined.