



5-3 Additional Practice

Step Functions

Evaluate the ceiling function for the given value.

1. $f(x) = \lceil x \rceil$; $x = -2.4$ 2. $g(x) = \text{ceiling}(x, 0.25)$; $x = 7.63$ 3. $h(x) = \lceil x \rceil$; $x = -3.92$

Evaluate the floor function for the given value.

4. $f(x) = \lfloor x \rfloor$; $x = -17.3$ 5. $g(x) = \text{floor}(x, 0.1)$; $x = 13.75$ 6. $h(x) = \lfloor x \rfloor$; $x = 33.93$

7. Compare the domain and range for $f(x) = \lceil x \rceil$ and $g(x) = \lfloor x \rfloor$.

8. Suppose $f(x) = \lceil x \rceil$ and $g(x) = \lfloor x \rfloor$. Are there any value(s) for x for which $f(x) = g(x)$? Explain.

9. The table summarizes various rates for parking at a city garage.

Hours	$0 < x \leq 2$	$2 < x \leq 4$	$4 < x \leq 6$	$x > 6$
Cost	\$0	\$5.00	\$10.00	\$15.00

- a. Write a step function $C(x)$ that models the cost C for parking x hours.

- b. What is the average rate of change over the interval $1 \leq x \leq 3$? The interval $5 \leq x \leq 6$?