<u>Task 1</u>

Sketch the graph of a function f with all of the following properties:

$\lim_{x \to 1} f(x) \neq f(1)$	$\lim_{x \to -5} f(x) DNE$	$\lim_{x \to \infty} f(x) = 3$
f(-1) is undefined	$\lim_{x \to 4^+} f(x) = 1$	$\lim_{x \to 4^-} f(x) = -\infty$

Also, identify your function's domain and range:

Domain	Range

<u>Task 2</u>

Sketch the graph of a function f with all of the following properties:

$\lim_{x \to -1} f(x) \neq f(-1)$	$\lim_{x \to -3} f(x) DNE$	$\lim_{x \to -\infty} f(x) = 2$
f(-2) is undefined	$\lim_{x \to -5^+} f(x) = 4$	$\lim_{x \to -5^{-}} f(x) = -\infty$

Also, identify your function's domain and range:

Domain	Range

<u>Task 3</u>

Sketch the graph of a function f with all of the following properties:

$\lim_{x \to 0} f(x) \neq f(0)$	$\lim_{x \to 4} f(x) DNE$	$\lim_{x \to -\infty} f(x) = \infty$
f(2) is undefined	$\lim_{x \to -1^+} f(x) = 4$	$\lim_{x \to -1^{-}} f(x) = 2$

Also, identify your function's domain and range:

Domain	Range

<u>Task 4</u>

Sketch the graph of a function f with all of the following properties:

$\lim_{x \to 2} f(x) \neq f(2)$	$\lim_{x \to -1} f(x) \ DNE$	$\lim_{x \to \infty} f(x) = -\infty$
f(1) is undefined	$\lim_{x \to 3^+} f(x) = 4$	$\lim_{x \to 3^{-}} f(x) = 2$

Also, identify your function's domain and range:

Domain	Range

<u>Task 5</u>

Sketch the graph of a function f with all of the following properties:

$\lim_{x \to 3} f(x) \neq f(3)$	$\lim_{x \to 1} f(x) DNE$	$\lim_{x \to -\infty} f(x) = 0$
f(5) is undefined	$\lim_{x \to -4^+} f(x) = \infty$	$\lim_{x \to -4^{-}} f(x) = -\infty$

Also, identify your function's domain and range:

Domain	Range

<u>Task 6</u>

Sketch the graph of a function f with all of the following properties:

$\lim_{x \to 4} f(x) \neq f(4)$	$\lim_{x \to 0} f(x) DNE$	$\lim_{x \to -\infty} f(x) = 0$
f(-3) is undefined	$\lim_{x \to -2^+} f(x) = \infty$	$\lim_{x \to -2^-} f(x) = 5$

Also, identify your function's domain and range:

Domain	Range

<u>Task 7</u>

Sketch the graph of a function f with all of the following properties:

There is a removable discontinuity at $x = 3$.	There is a jump discontinuity at $x = 1$.	$\lim_{x \to -2} f(x) = 3$
$\lim_{x \to -5^+} f(x) = 4$	$\lim_{x \to -5^{-}} f(x) = -\infty$	$\lim_{x \to -\infty} f(x) = 2$

<u>Task 8</u>

Sketch the graph of a function f with all of the following properties:

There is a removable discontinuity at $x = 2$.	There is a jump discontinuity at $x = 4$.	$\lim_{x \to 2} f(x) = 5$
$\lim_{x \to 4^-} f(x) = 3$	$\lim_{x \to -5} f(x) = 2$	$\lim_{x \to -\infty} f(x) = -1$

<u>Task 9</u>

Sketch the graph of a function f with all of the following properties:

There is a removable	The domain is:	$\lim_{x \to \infty^2} f(x) = 1$
discontinuity at $x = -1$.	$x \in [-5, -2) \cup (-2, \infty)$	2→-5
$\lim_{x \to -2^+} f(x) = 3$	$\lim_{x \to -2^{-}} f(x) = \infty$	$\lim_{x \to \infty} f(x) = 6$

<u>Task 10</u>

Sketch the graph of a function f with all of the following properties:

There is a removable	The domain is:	$\lim_{x \to 0} f(x) = 1$
discontinuity at $x = 2$.	$x \in (-\infty, 4]$	$x \rightarrow 2$
$\lim_{x \to 4^-} f(x) = \infty$	$\lim_{x \to 0^-} f(x) = -2$	$\lim_{x \to 0^+} f(x) = 1$