95. For any $-M<0$, take $\delta = \frac{1}{M} > 0$ s.t.

if $-\delta < x < 0$ then $\frac{1}{x} < \frac{1}{-\delta} = -M$

97. For any $M>0$, take $\delta = \frac{1}{M} > 0$ s.t.

if $0 < x-2 < \delta$ then $\frac{1}{x-2} > \frac{1}{\delta} = M$

額外題 6

$\lim_{x\to\infty} f(x) = \infty$ $\Leftrightarrow$ for any $M>0$, there exists a $N>0$ s.t.

if $N<x$ then $f(x) > M$

$\lim_{x\to\infty} f(x) = -\infty$ $\Leftrightarrow$ for any $M>0$, there exists a $N>0$ s.t.

if $N<x$ then $f(x) < -M$

$\lim_{x\to-\infty} f(x) = \infty$ $\Leftrightarrow$ for any $M>0$, there exists a $N>0$ s.t.

if $x < -N$ then $f(x) > M$

$\lim_{x\to-\infty} f(x) = -\infty$ $\Leftrightarrow$ for any $M>0$, there exists a $N>0$ s.t.

if $x < -N$ then $f(x) < -M$

Show: $\lim_{x\to\infty} -x^3 = -\infty$

for any $M>0$, there exists a $N = \sqrt[3]{M} > 0$ s.t.

if $x > N > 0$ then $x^3 > N^3 = M$

$\Rightarrow -x^3 < -M$