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# LE8.1

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LE8.1.1 Asymptotic Latency and Throughput

1/1 point (ungraded)  
If we account for fan in limitations but ignore wire delays, what is the asymptotic latency of the fastest combinational N-input AND circuit we can build?

Asymptotic latency of N-input AND:

log(N)

✓

You entered:

log(N)

Submit

LE8.1.2 Asymptotic Latency and Throughput

1/1 point (ungraded)  
Is  $\Theta(\log_2 N)$  the same as  $\Theta(\log_{10} N)$

☒ Yes

☐ No

☐ Only for some N



Submit

LE8.1.3 Asymptotic Latency and Throughput

2/2 points (ungraded)  
A combinational multiplier is pipelined for maximum throughput. If the multiplier accepts two N-bit operands, what is the appropriate “order of” notation for its throughput and latency?

Throughput  $\Theta(\dots)$ :

1

✓

1

Latency  $\Theta(\dots)$ :

N

✓

N

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Accounting for the fan in limitations

Calculator

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"... if we have a gate with N inputs, we can't just assume that its propagation delay is the same as a 2-input gate." why not?

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