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Office
How
Di 05

$$\left\lceil \frac{58}{6} \right\rceil = \left\lceil 9 + \frac{4}{6} \right\rceil = 10$$

A six-sided die is rolled 58 times. Which of the following statements is true?

- a) ☐ At least 9 rolls produced the same number, but one cannot conclude with certainty that more rolls produced the same number.
- b) ☐ At least 58 rolls produced the same number, but one cannot conclude with certainty that more rolls produced the same number.
- c) ☐ At least 18 rolls produced the same number, but one cannot conclude with certainty that more rolls produced the same number.
- d) ☐ Exactly 7 rolls produced the same number.
- e) ☒ At least 10 rolls produced the same number, but one cannot conclude with certainty that more rolls produced the same number.

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① 2 3 4

formula $\left\lceil \frac{\# \text{ rolls}}{6} \right\rceil$

HW9

#9 how many primes are there?

Answer: there are infinitely many primes

Is x^3 $O(x^4)$?

Recall $f(x)$ is $O(g(x))$ means:

$$\exists M > 0, k > 0, \forall x > k, |f(x)| < M \cdot g(x)$$

in other words

$$\lim_{x \rightarrow \infty} |f(x)| < M \cdot g(x)$$

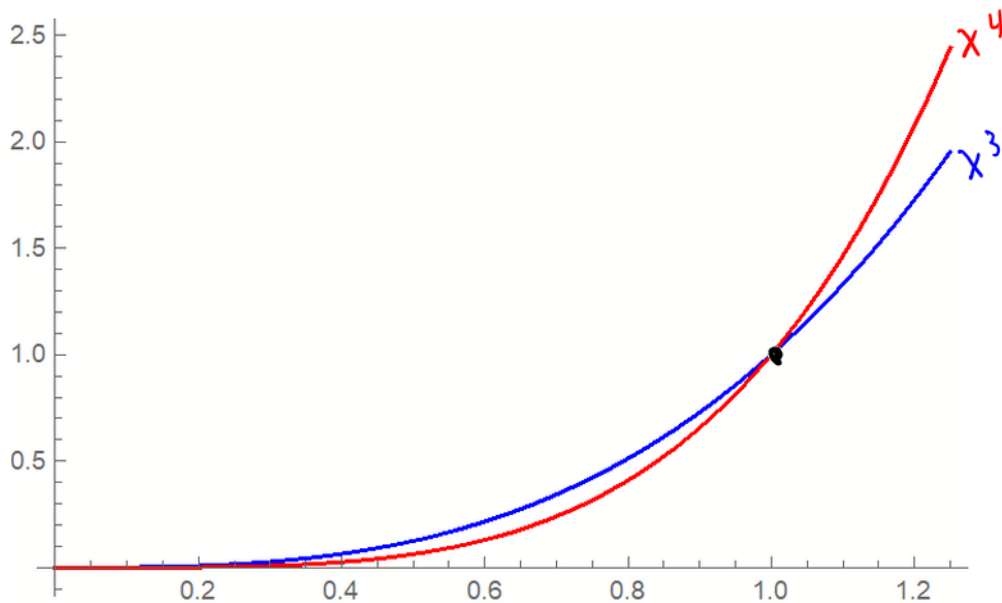
$$\lim_{x \rightarrow \infty} |x^3| < M \cdot x^4$$

?

Check: $x^3 < x^4$ for all $x > 1$

So this is true!

Yes, x^3 is $O(x^4)$.



important note: many scientists say "big O "
when they mean "big Θ "

