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## 1.3 Practice: The Multiplication Principle

### A Note About Answer Formats

Most of the practice and evaluation problems in Fat Chance ask you to select an answer format that highlights the techniques used to calculate that answer. For example, instead of the answer option 456, 976, you might see the option  $26^4$  or  $26 \times 26 \times 26 \times 26$ .

Why do we do this?

Developing a **mathematical mode of thought** requires thinking critically about the techniques and principles employed throughout the course. The hope is that this approach will encourage you to **reflect on the techniques** used to calculate these values.



## 1.3 Practice Problem 1

0 points possible (ungraded)

A course catalog for the Open University of Earth lists classes via a sequence of three numbers (chosen from 0 to 9) followed by three letters in English (chosen from A to Z). How many courses can be given unique catalog numbers? *Choose the best answer.*

☐  $10 \times 9 \times 8 \times 26 \times 25 \times 24$

☐  $(10 \times 10 \times 10) + (26 \times 26 \times 26)$

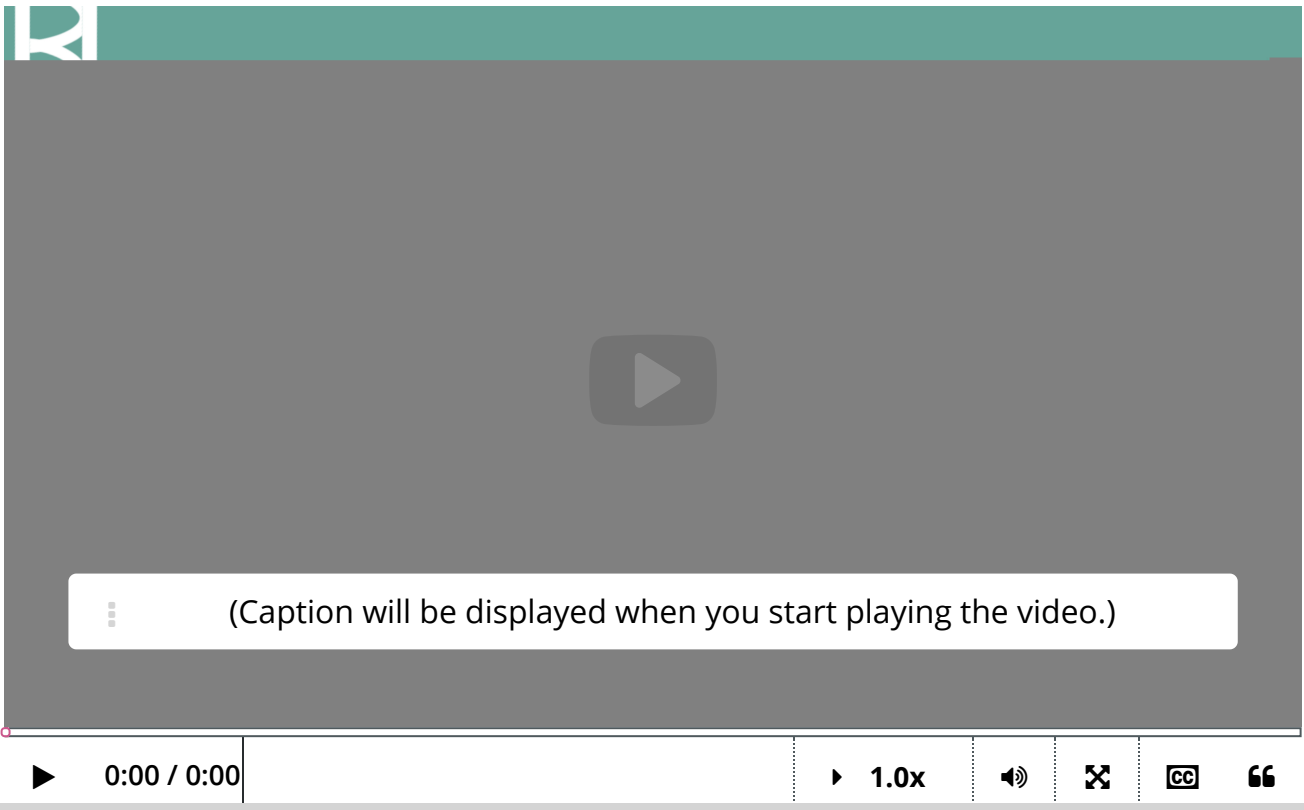
☒  $10^3 \times 26^3$

☐  $10 \times 3 \times 26 \times 3$



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## 1.3 Office Hours for Practice Problem 1



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### 1.3 Practice Problem 2.a

0 points possible (ungraded)

A course catalog for the Open University of the Milky Way lists classes by a sequence of two letters (chosen from A to Z) and four numbers (chosen from 0 to 9).

How many courses can be given unique catalog numbers? *Choose the best answer.*

☐  $26^2 \times 9^4$

☒  $26^2 \times 10^4$

☐  $26 \times 2 \times 10 \times 4$

☐  $26 \times 25 \times 10 \times 9 \times 8 \times 7$



### 1.3 Practice Problem 2.b

0 points possible (ungraded)

A course catalog for the Open University of the Milky Way lists classes by a sequence of two letters (chosen from A to Z) and four numbers (chosen from 0 to 9).

Is this enough to offer five-million courses? *Choose the best answer*

☒ Yes☐ No

## 1.3 Practice Problem 2.c

0 points possible (ungraded)

A course catalog for the Open University of the Milky Way lists classes by a sequence of two letters (chosen from A to Z) and four numbers (chosen from 0 to 9).

How many course numbers are there which have no repeated letters and no repeated numbers? *Choose the best answer.*

☐  $26^2 \times 10^4$

☐  $26 \times 2 \times 10 \times 4$

☐  $26^2 \times 9^4$

☒  $26 \times 25 \times 10 \times 9 \times 8 \times 7$



## 1.3 Office Hours for Practice Problem 2



(Caption will be displayed when you start playing the video.)

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