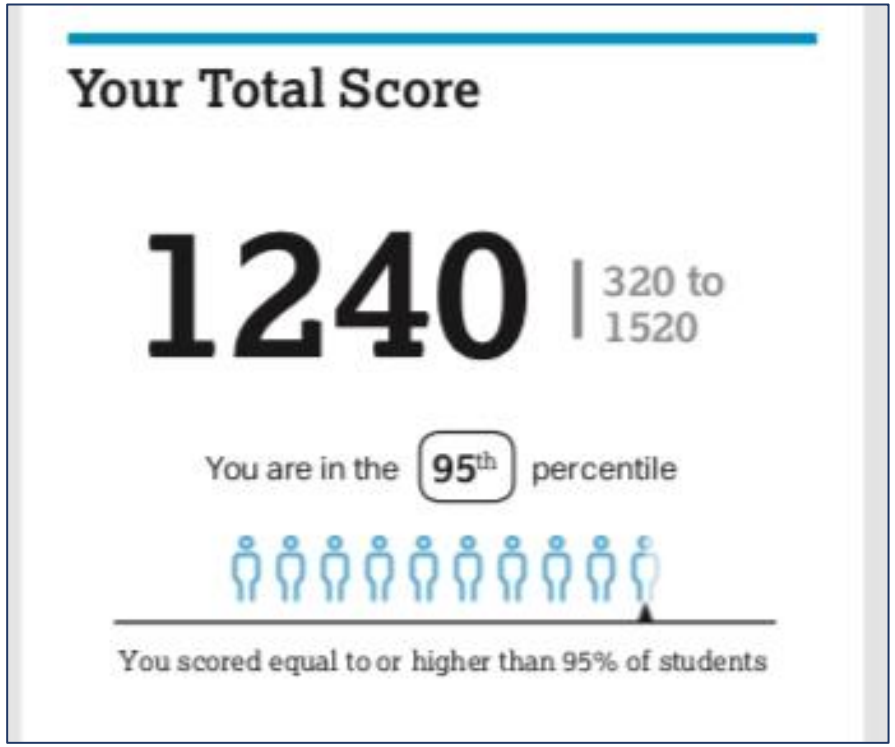
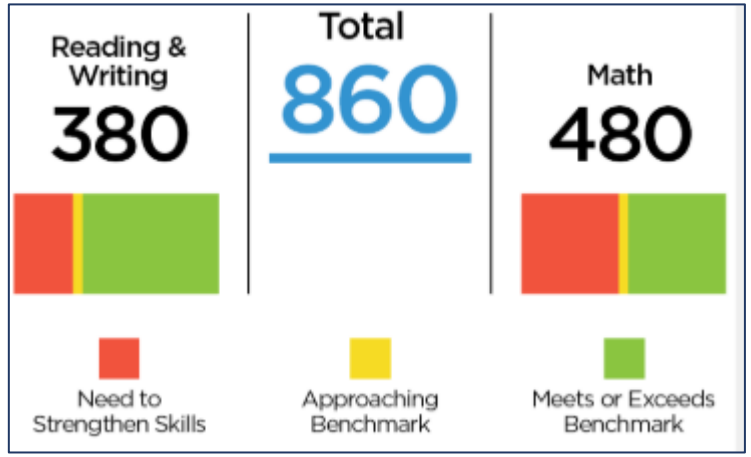
Studying

Times Tables, Ebbinghaus and Yoruba

SAT scores use percentiles

SAT Composite Range	Percentile Score	Equivalent Letter Grade
1530-1600	99+	A+
1450-1530	99 to 99+	A+
1420-1450	98 to 99	A
1360-1420	95 to 98	A
1310-1360	92 to 95	A-
1270-1310	88 to 92	B+/A-
1210-1270	82 to 88	B+
1160-1210	76 to 82	B-/B
1120-1160	70 to 76	C
1060-1120	60 to 70	D
1000-1060	48 to 60	D
960-1000	40 to 48	F
910-960	31 to 40	F
850-910	21 to 31	F
800-850	14 to 21	F
750-800	9 to 15	F
630-750	1 to 9	F
620-630	1- to 1	F
620 and below	1-	F





Term Dean's Honours List

In recognition of outstanding academic achievement in an academic term, the designation "Term Dean's Honours List" is awarded to undergraduate Mathematics students who satisfy all of the following criteria for the term:

- registered in an honours plan with a Term Average (TAV) of at least 87%;
- normally enrolled in at least 2.5 units of courses with numeric or letter grades;
- no excluded courses; and
- no INC, IP, or UR grades.

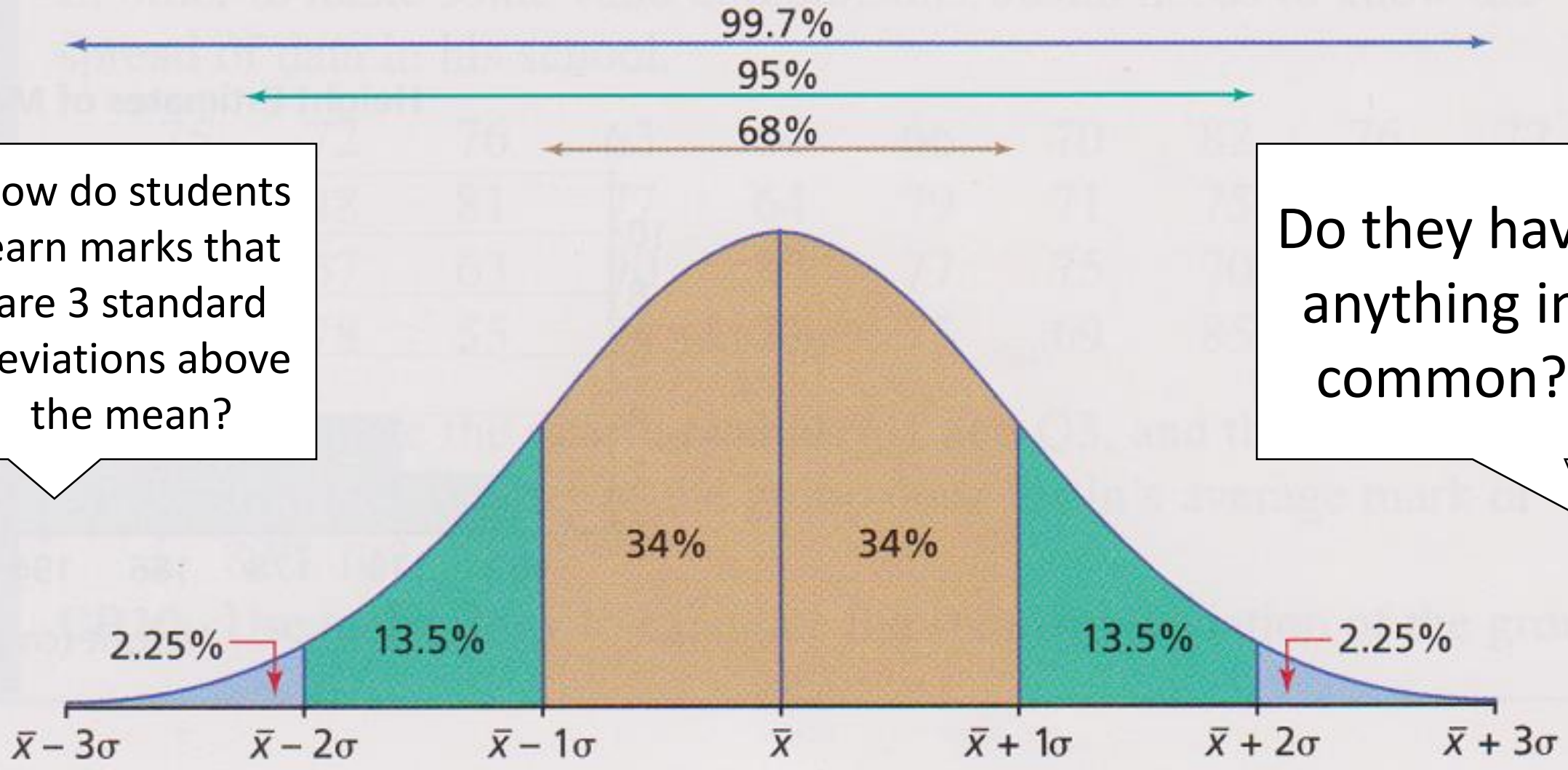
But we used to say that only the top percentile (99^{th}) made the honours list.

In 2014, about 72 out of 6939 made the list which was 1%.

Ebbinghaus Forgetting Curve

How do students earn marks that are 3 standard deviations above the mean?

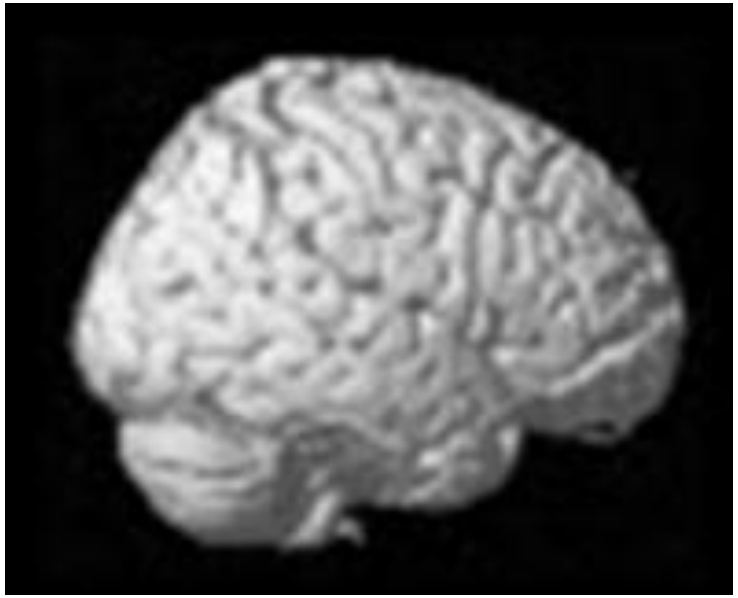
Do they have anything in common?



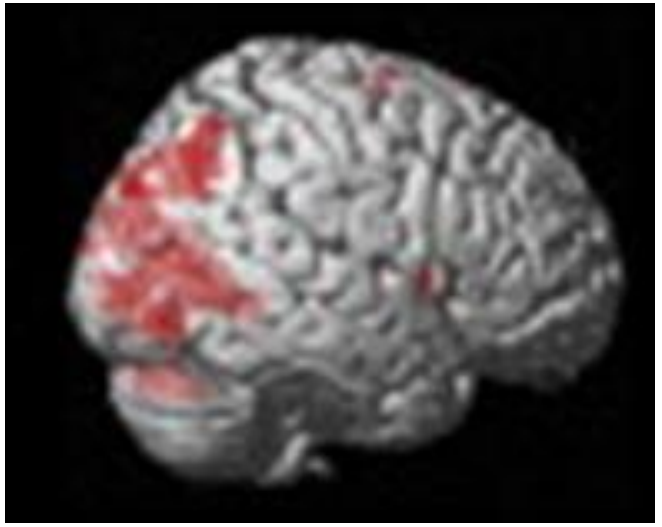
The graph of the normal distribution $X \sim N(\bar{x}, \sigma^2)$

Tone Discrimination Training Task

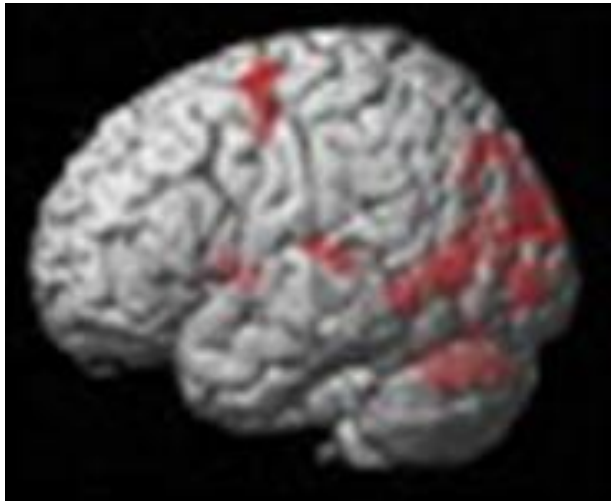
Before Training



After, Successful



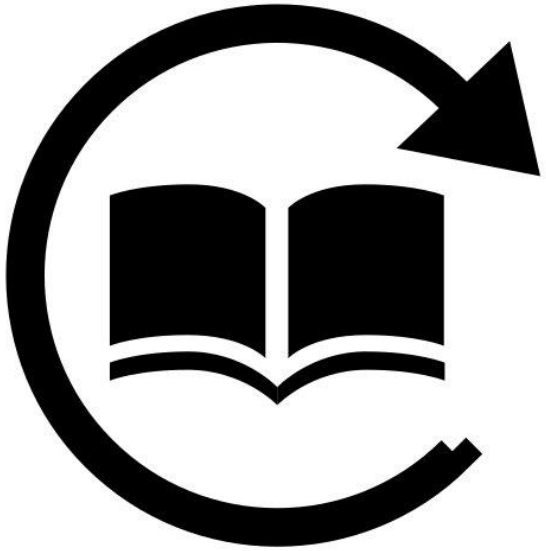
After, Not Successful



How do you study?

Highlighting, Underlining

Re-reading notes

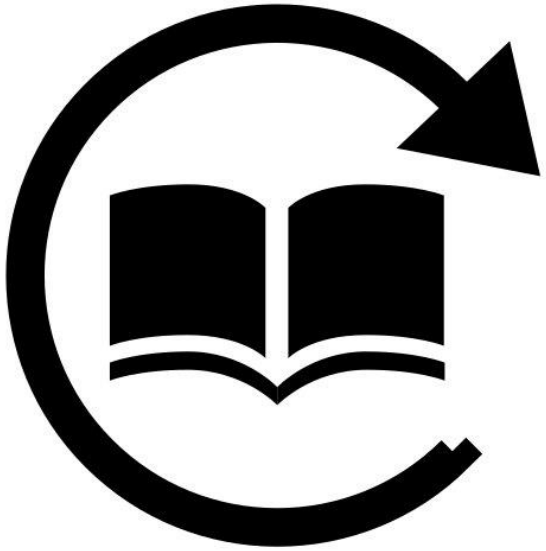


Testing yourself

How do you study?

Highlighting, Underlining

Re-reading notes



Testing yourself

84% of students do this.

The most common technique.

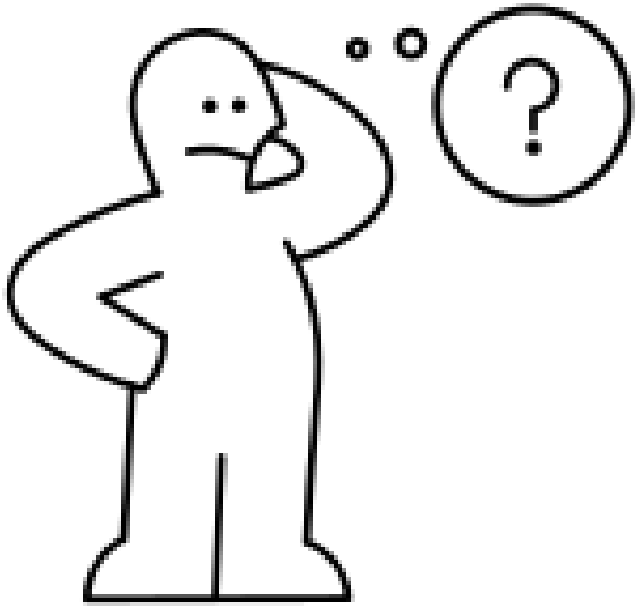
If you read a chapter and then re-read it, you will recognize a lot of what you read. That familiarity will fool you into thinking that you really know it.
Unfortunately, you will be in for a rude awakening when you actually write the test and need to RECALL the information. That's a more in-depth brain change.

This happens all the time – students who study by re-reading are often very surprized. They often say they aren't good at test taking. Or that tests aren't fair or useful. That's not the trouble. They just didn't change their brain.

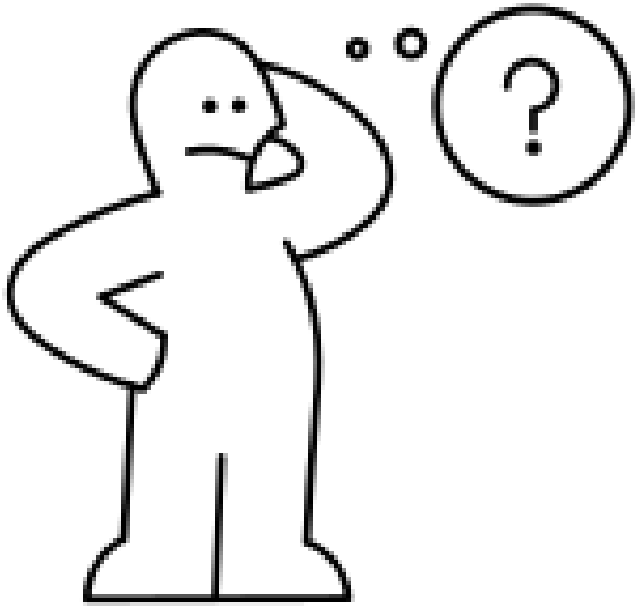
Re-reading is ok, it's not the best. Any time you spend reading isn't time you spend effectively building your brain.
I repeatedly tell my students not to bother re-reading. It's a waste of time.

The key is that memory consolidation is ACTIVE. Not passive.

Who were the last 3 vice presidents of the United States?

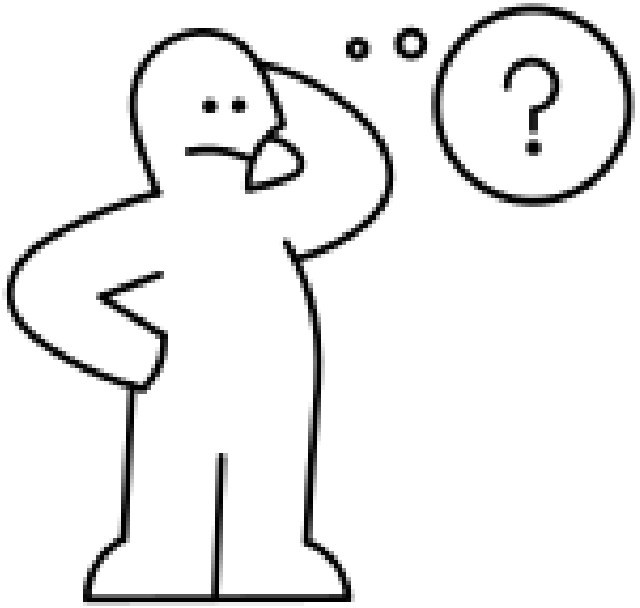


Who were the last 3 vice presidents of the United States?



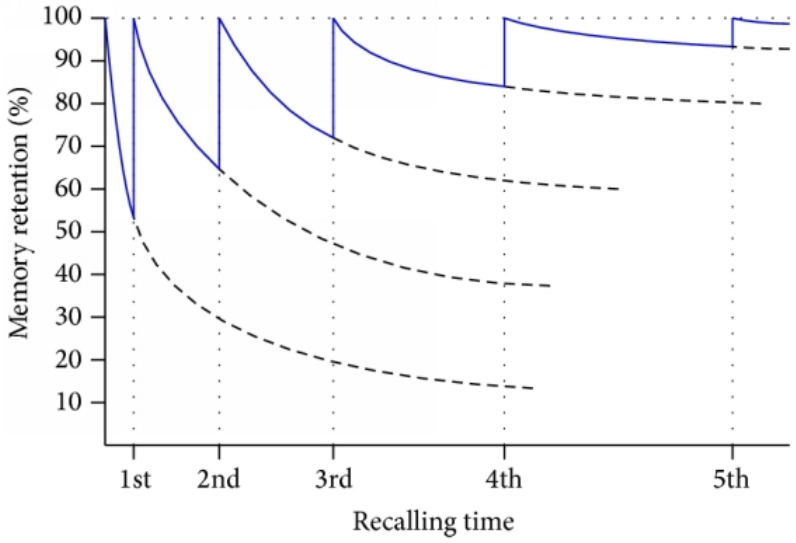
Dick Cheney
John McCain
Elizabeth Warren
Mike Pence
Nancy Pelosi
Mitt Romney
Joe Biden

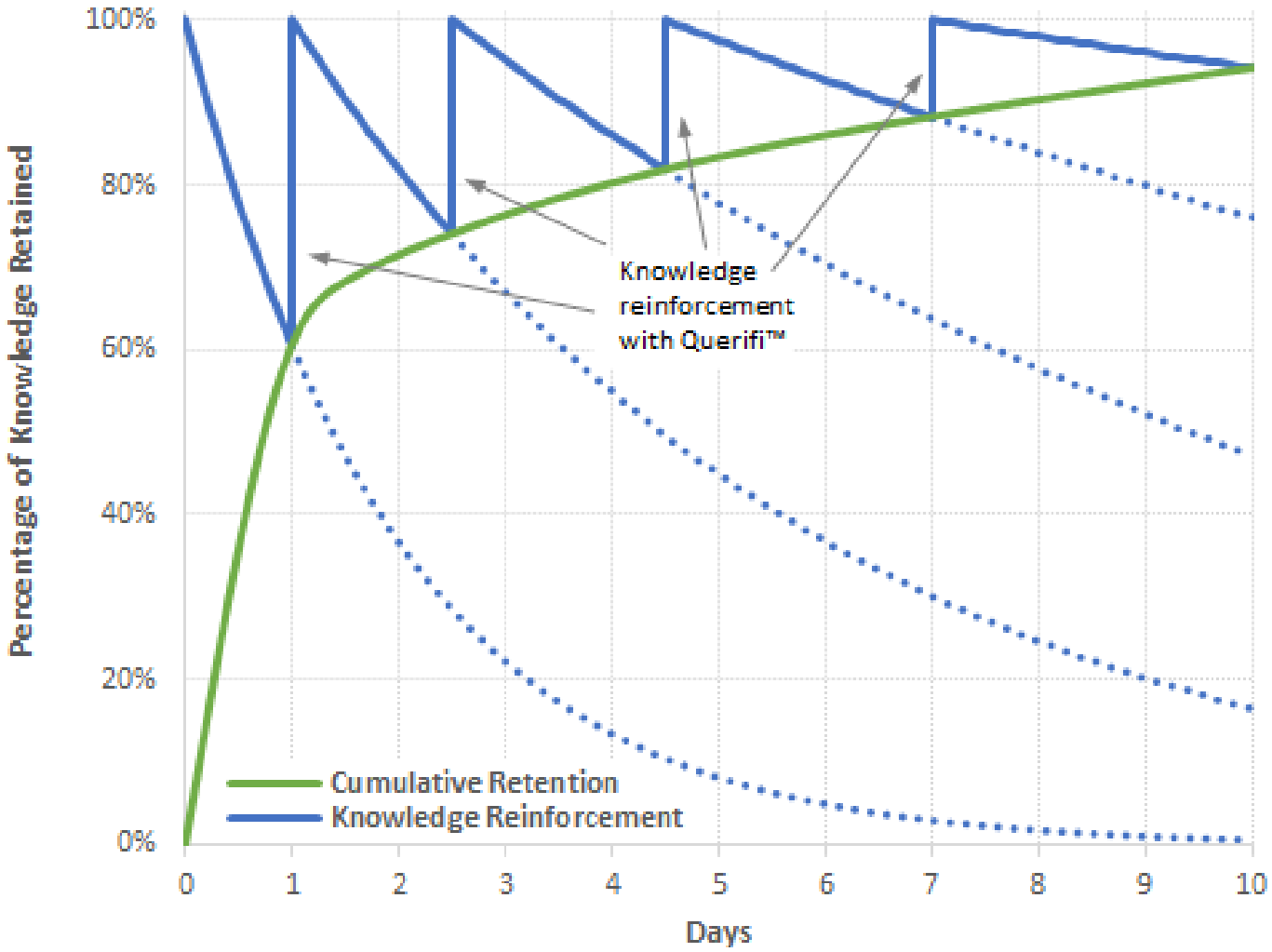
Who were the last 3 vice presidents of the United States?



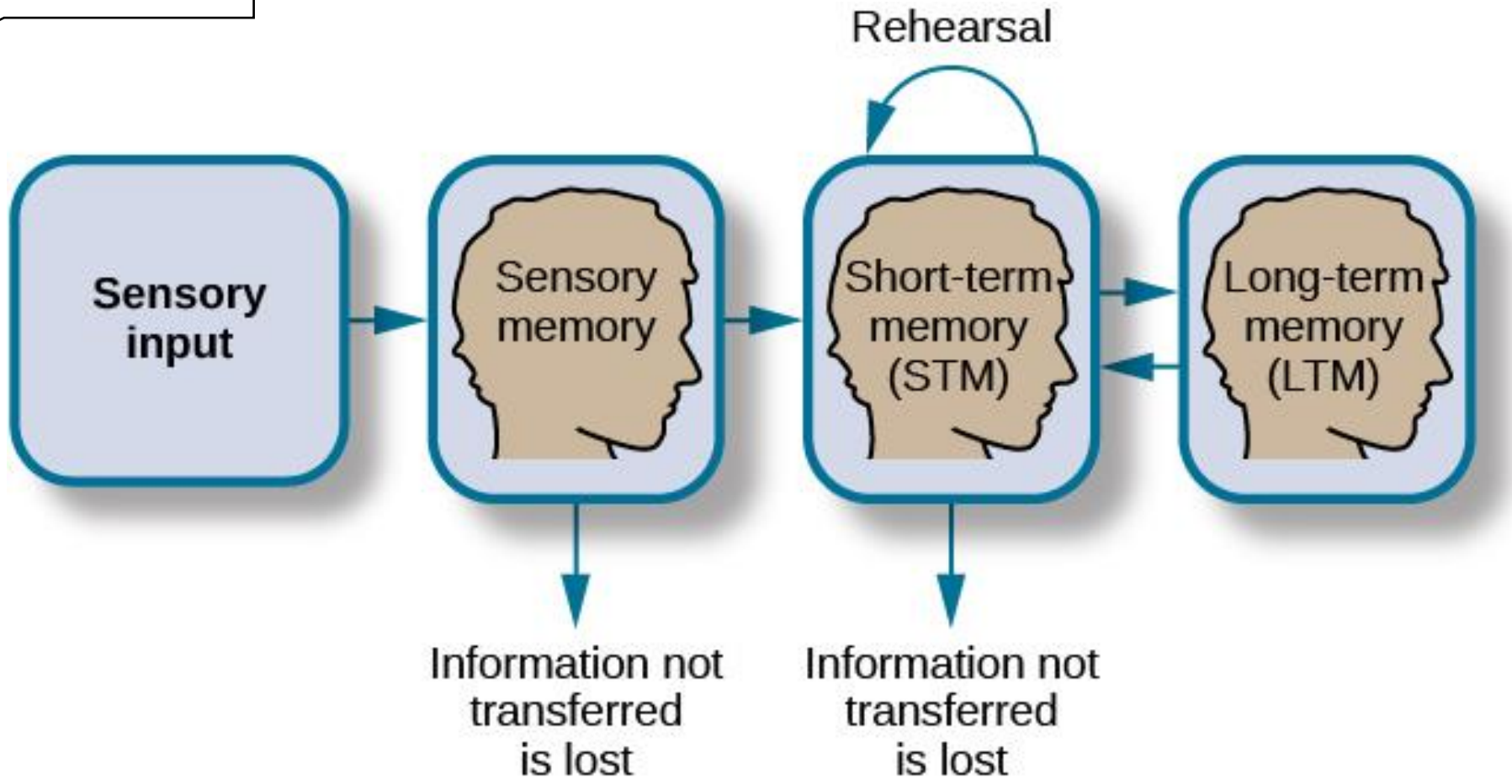
Dick Cheney 3
John McCain
Elizabeth Warren
Mike Pence 1
Nancy Pelosi
Mitt Romney
Joe Biden 2

Combatting the Forgetting Curve





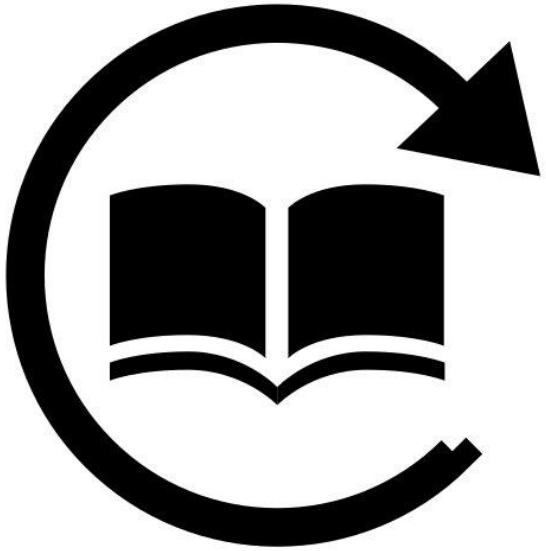
Studying


Rehearsal
Sensory input
Sensory memory
Short-term memory (STM)
Long-term memory (LTM)
Information not transferred is lost
Information not transferred is lost

How should you study?

Highlighting, Underlining

Re-reading notes



Testing yourself

At the end of the day

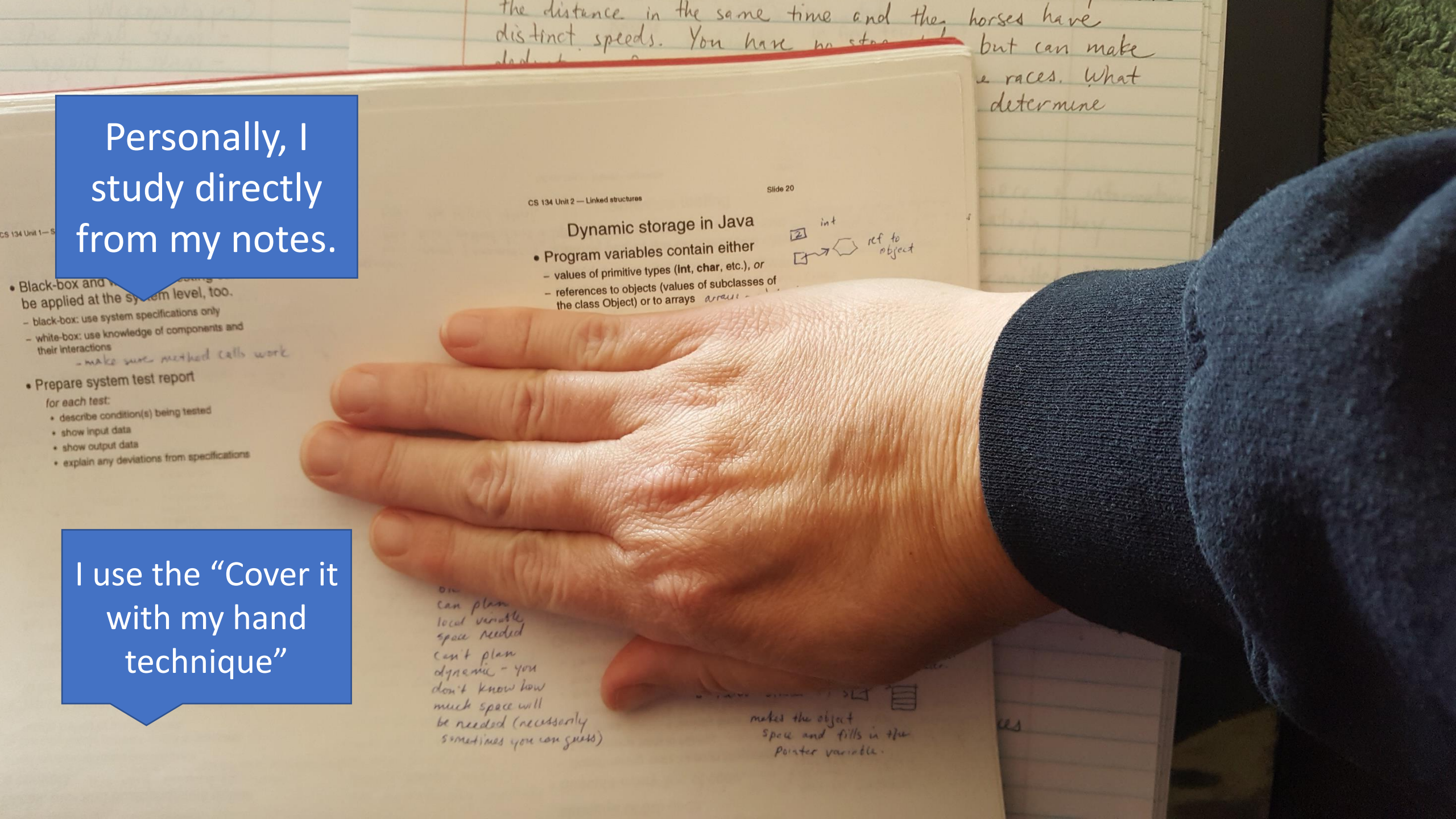
At the end of the week

At the end of the month

Rehearse the content until you can recite it back without looking

Personally, I study directly from my notes.

I use the “Cover it with my hand technique”



Slide 19

em testing

white-box testing can
he system level, too.

ystem specifications only
nowledge of components and

e sure method calls work

em test report

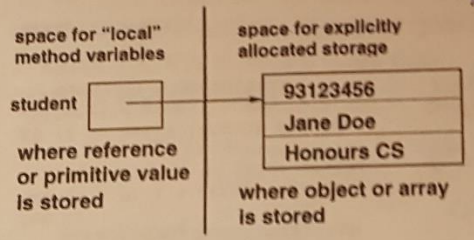
dition(s) being tested
lata
data
deviations from specifications

I repeat until I don't need to peek to recall the information

- Program variables contain either
  - values of primitive types (Int, char, etc.), or
  - references to objects (values of subclasses of the class Object) or to arrays arrays are's bit of
- Space to hold the value of a variable "local" to a method is allocated automatically. int x done when you declare it creates space for it (doesn't fill it)
- Space to hold the value of an object or array is explicitly allocated and initialized upon construction.
  - in response to use of new or array initializer done dynamically

2 ways to allocate space

de allocated when the method ends or if declared to be in for loop; gone when for loop is done. done automatically.



a reference holds a memory address

local + dynamic storage is seperated b/c compiler can plan local variable space needed can't plan dynamic - you don't know how much space will be needed (necessarily sometimes you can guess)

Student s; s [?] makes space for pointer.

s = new Student() s → makes the object space and fills in the pointer variable.

the top 3.

n 2 new)

Benin
Nigeria
Ghana
Countries where
Yoruba is spoken
Atlantic
Ocean
Sierra Leone
Ghana
Togo
Benin
Nigeria

3 X

3 x 1 = 3
3 x 2 = 6
3 x 3 = 9
3 x 4 = 12
3 x 5 = 15
3 x 6 = 18
3 x 7 = 21
3 x 8 = 24
3 x 9 = 27
3 x 10 = 30
3 x 11 = 33
3 x 12 = 36

6 X

6 x 1 = 6
6 x 2 = 12
6 x 3 = 18
6 x 4 = 24
6 x 5 = 30
6 x 6 = 36
6 x 7 = 42
6 x 8 = 48
6 x 9 = 54
6 x 10 = 60
6 x 11 = 66
6 x 12 = 72

1 X	2 X	3 X	4 X	5 X
1 x 1 = 1	2 x 1 = 2	3 x 1 = 3	4 x 1 = 4	5 x 1 = 5
1 x 2 = 2	2 x 2 = 4	3 x 2 = 6	4 x 2 = 8	5 x 2 = 10
1 x 3 = 3	2 x 3 = 6	3 x 3 = 9	4 x 3 = 12	5 x 3 = 15
1 x 4 = 4	2 x 4 = 8	3 x 4 = 12	4 x 4 = 16	5 x 4 = 20
1 x 5 = 5	2 x 5 = 10	3 x 5 = 15	4 x 5 = 20	5 x 5 = 25
1 x 6 = 6	2 x 6 = 12	3 x 6 = 18	4 x 6 = 24	5 x 6 = 30
1 x 7 = 7	2 x 7 = 14	3 x 7 = 21	4 x 7 = 28	5 x 7 = 35
1 x 8 = 8	2 x 8 = 16	3 x 8 = 24	4 x 8 = 32	5 x 8 = 40
1 x 9 = 9	2 x 9 = 18	3 x 9 = 27	4 x 9 = 36	5 x 9 = 45
1 x 10 = 10	2 x 10 = 20	3 x 10 = 30	4 x 10 = 40	5 x 10 = 50
1 x 11 = 11	2 x 11 = 22	3 x 11 = 33	4 x 11 = 44	5 x 11 = 55
1 x 12 = 12	2 x 12 = 24	3 x 12 = 36	4 x 12 = 48	5 x 12 = 60

6 X	7 X	8 X	9 X	10 X
6 x 1 = 6	7 x 1 = 7	8 x 1 = 8	9 x 1 = 9	10 x 1 = 10
6 x 2 = 12	7 x 2 = 14	8 x 2 = 16	9 x 2 = 18	10 x 2 = 20
6 x 3 = 18	7 x 3 = 21	8 x 3 = 24	9 x 3 = 27	10 x 3 = 30
6 x 4 = 24	7 x 4 = 28	8 x 4 = 32	9 x 4 = 36	10 x 4 = 40
6 x 5 = 30	7 x 5 = 35	8 x 5 = 40	9 x 5 = 45	10 x 5 = 50
6 x 6 = 36	7 x 6 = 42	8 x 6 = 48	9 x 6 = 54	10 x 6 = 60
6 x 7 = 42	7 x 7 = 49	8 x 7 = 56	9 x 7 = 63	10 x 7 = 70
6 x 8 = 48	7 x 8 = 56	8 x 8 = 64	9 x 8 = 72	10 x 8 = 80
6 x 9 = 54	7 x 9 = 63	8 x 9 = 72	9 x 9 = 81	10 x 9 = 90
6 x 10 = 60	7 x 10 = 70	8 x 10 = 80	9 x 10 = 90	10 x 10 = 100
6 x 11 = 66	7 x 11 = 77	8 x 11 = 88	9 x 11 = 99	10 x 11 = 110
6 x 12 = 72	7 x 12 = 84	8 x 12 = 96	9 x 12 = 108	10 x 12 = 120