Developing Tasks for Screening Dyscalculia Tendencies

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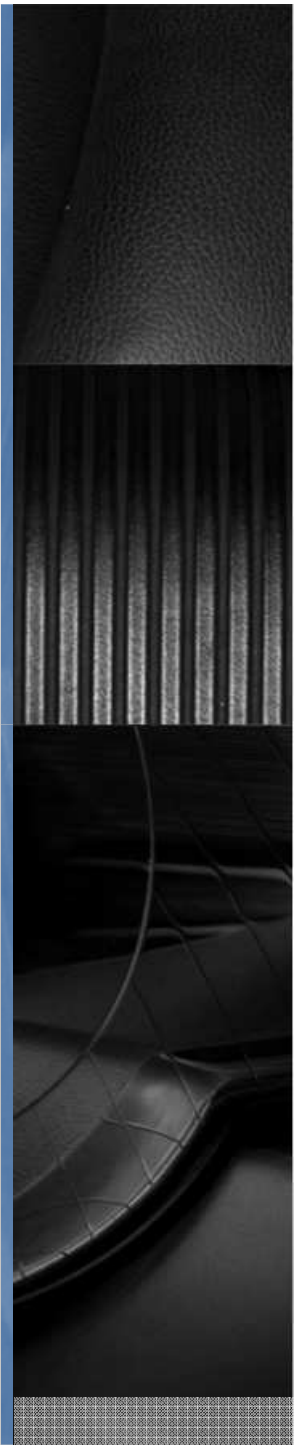


About Developmental Dyscalculia?

- DD is a specific mathematics learning disability
- Difficulty learning number concepts and calculations
- They have normal intelligence but low achievement in arithmetic
- Lag at least two years behind their peers
- Affects 3 to 6% of school age population
- No ethnic or minority differences

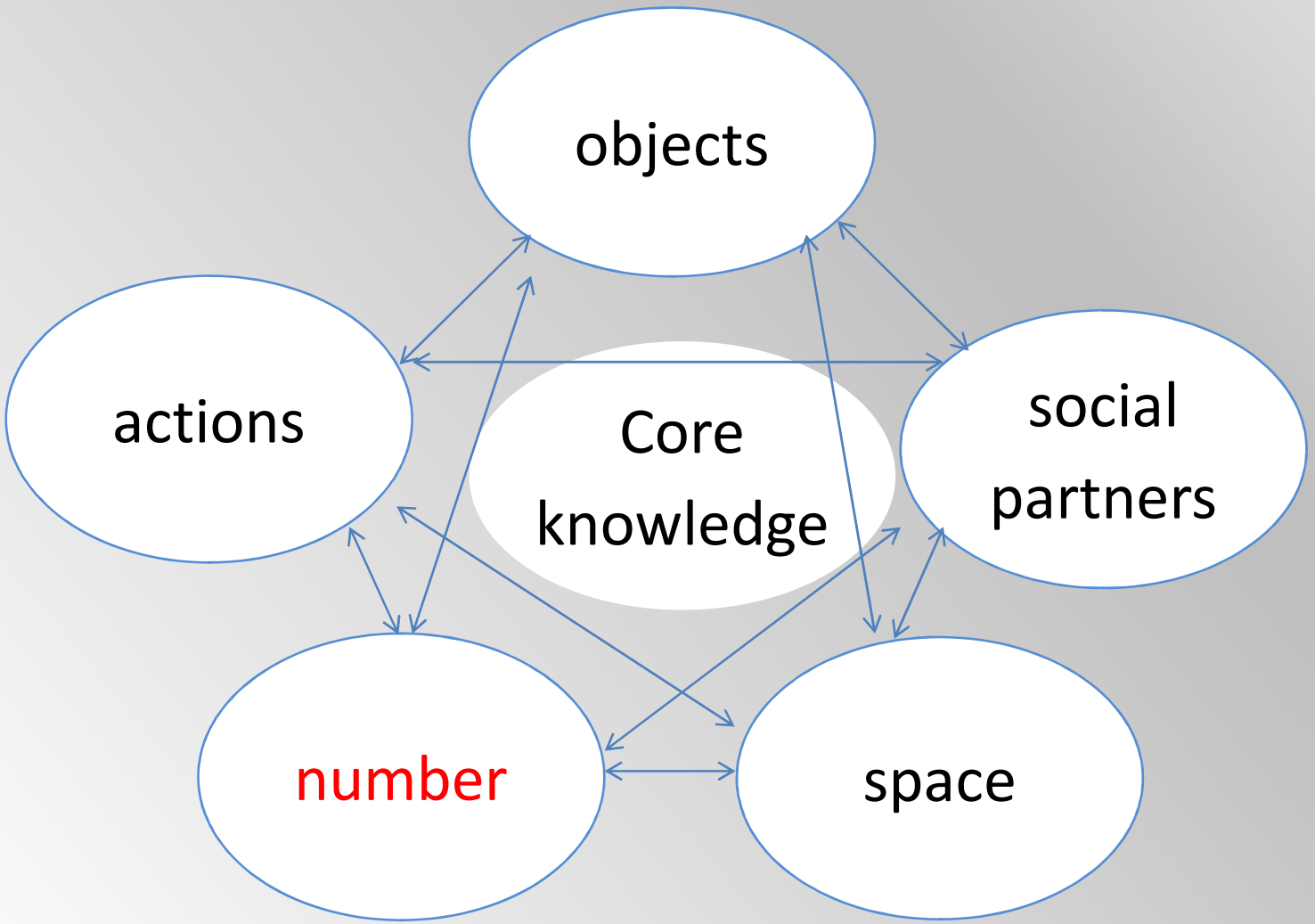
Assessing DD

- Being in the bottom 5 or 10 % in standardized math achievement tests
- A 2 year-gap between school grade and achievement
- Substentially lower achievement, at least 1,5-2 SD discrepancy between IQ and achievement in math
- not responding to education

New approaches to assessment

- basic human cognition systems, or
- basic capacities of human brain
- core deficit in number sense or in the link between number sense and symbolic number representations

Core systems of human cognition



Core systems of number

Core systems of number

Approximate number system, **ANS**

Exact number system, **ENS**

Representational modalities

1. Symbolic representations: Arabic numerals, words, canonic dot patterns
2. Non-symbolic representation: Random or irregular dot patterns, number line

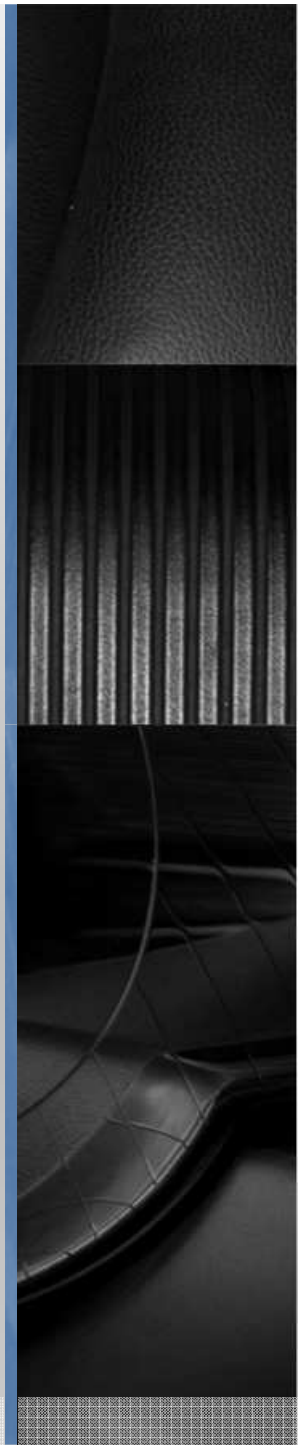
1. Random or irregular dot counting
2. Mental number line
3. Perceptual quantity estimation

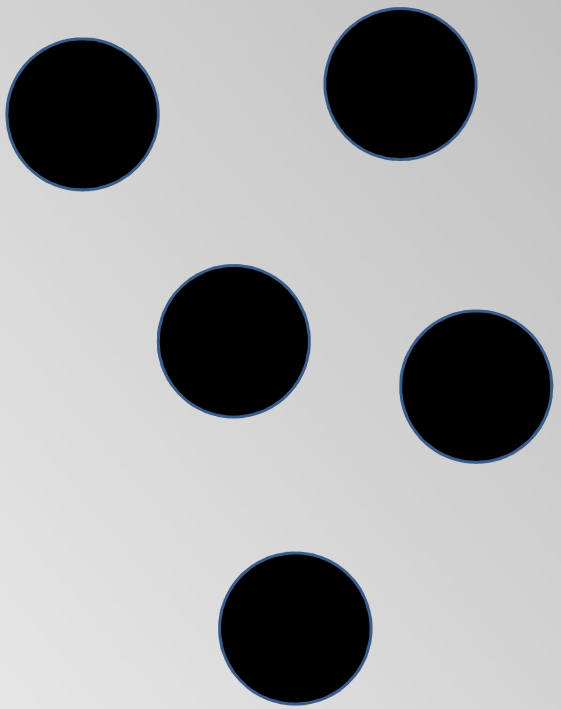
4. Canonic dot counting
5. Symbolic number comparison
6. Basic calculations

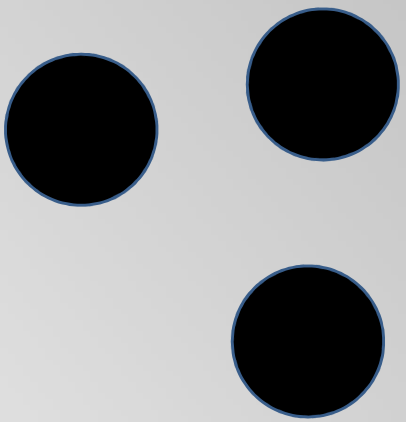
Indicators of number sense

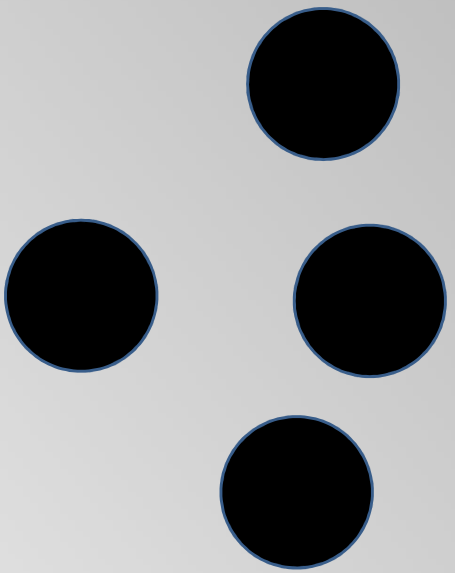
- Random or irregular dot counting
- Canonic dot counting
- Mental number line
- Perceptual quantity estimation
- Symbolic number comparison
- Mental calculation

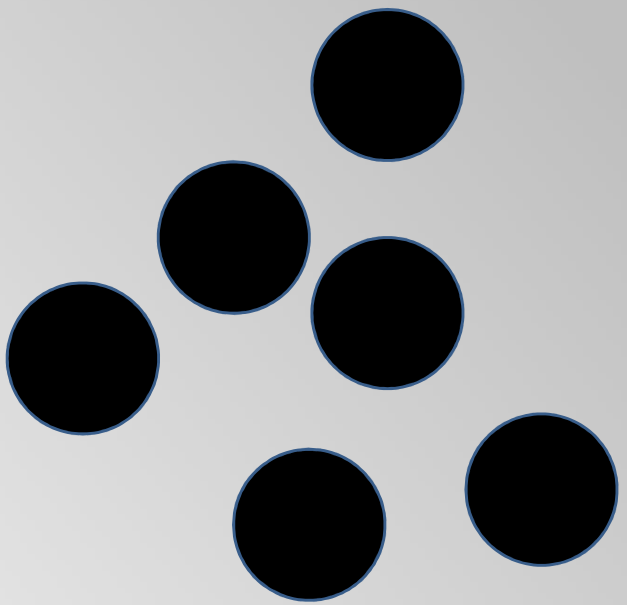
subitizing

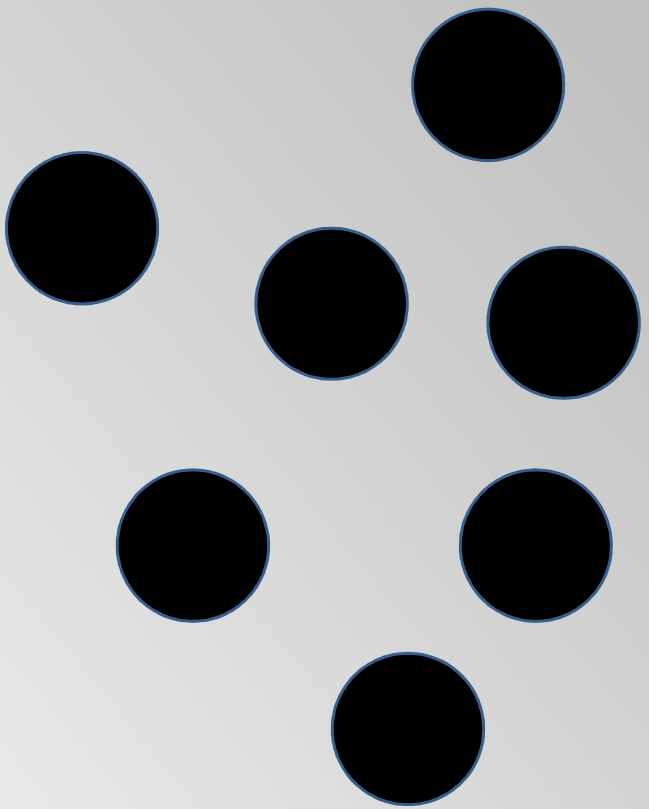


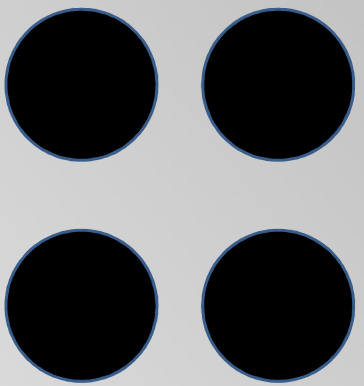


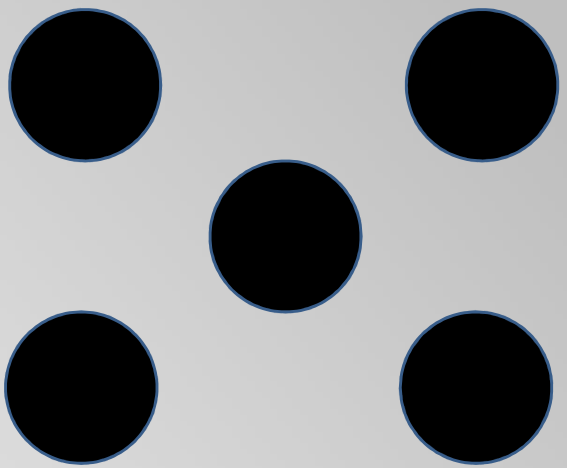


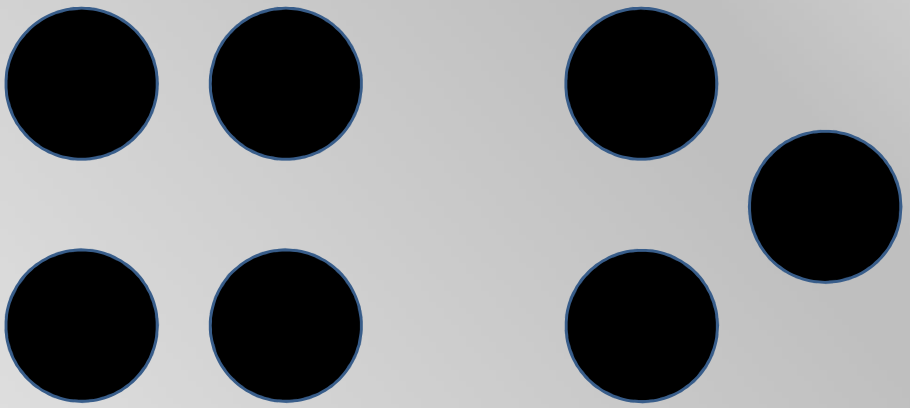


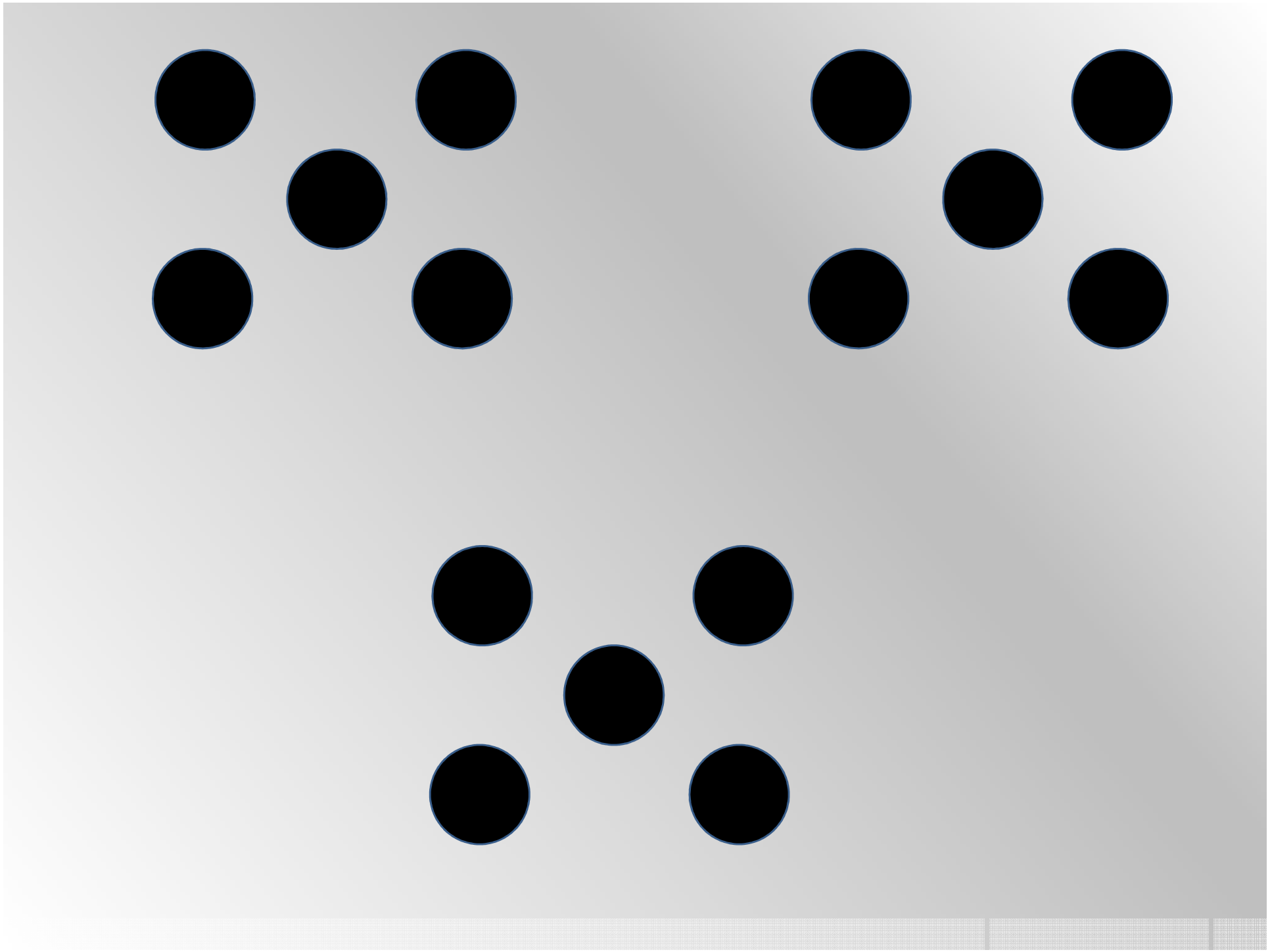


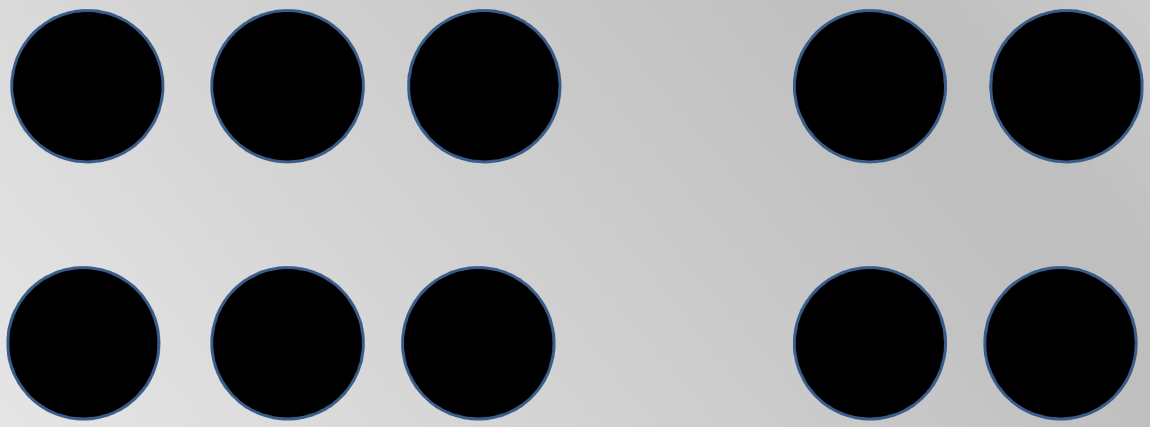




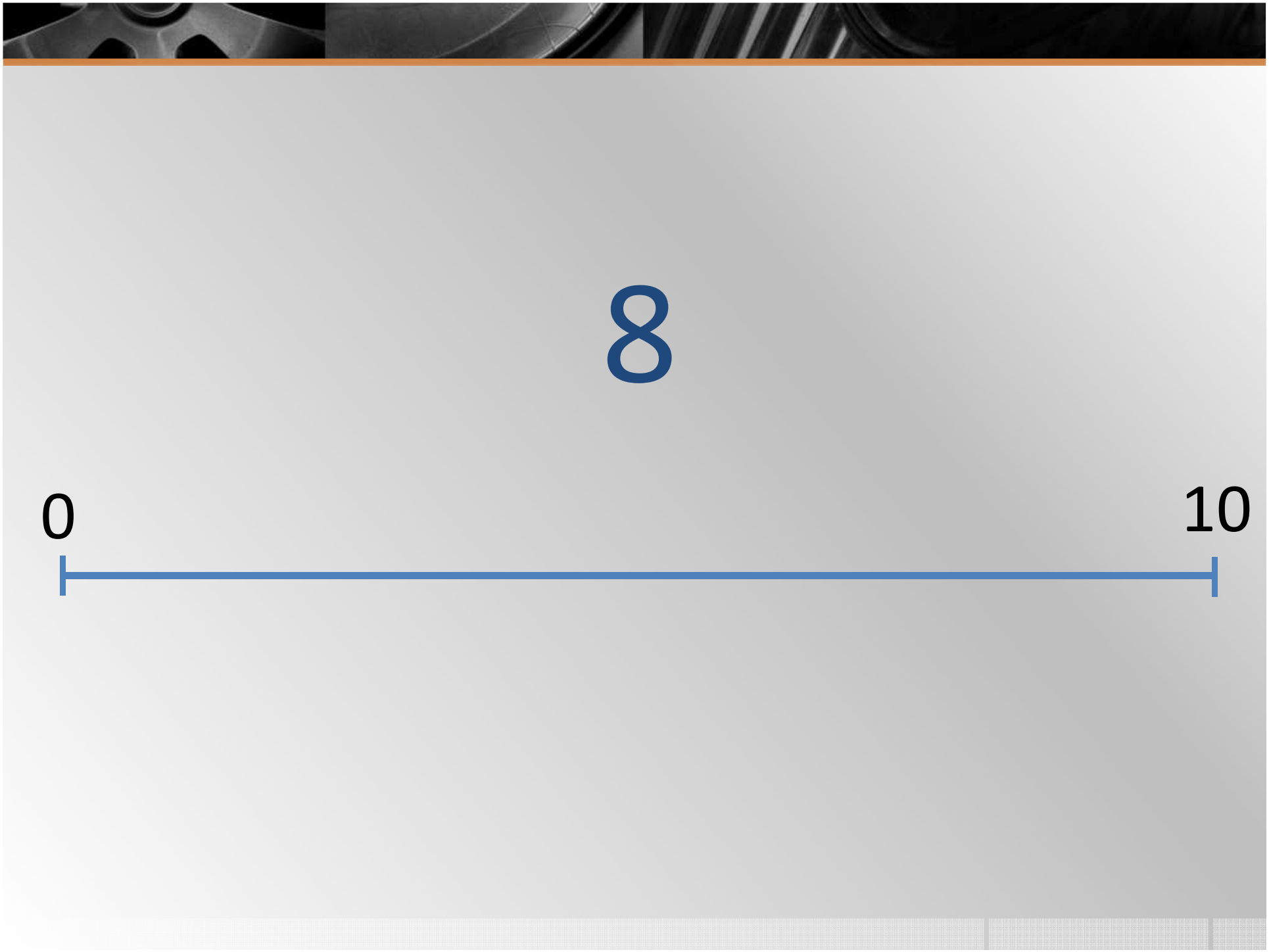








TOSHIBA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10

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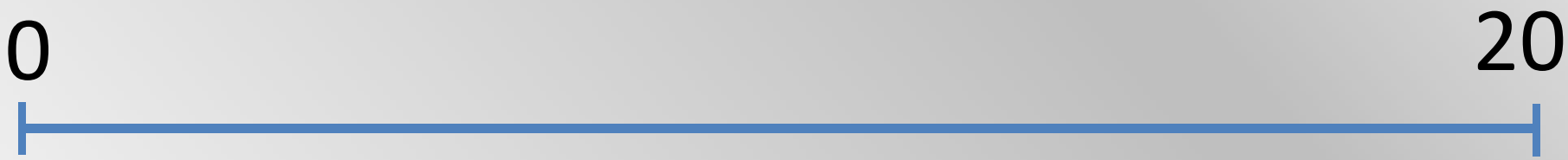

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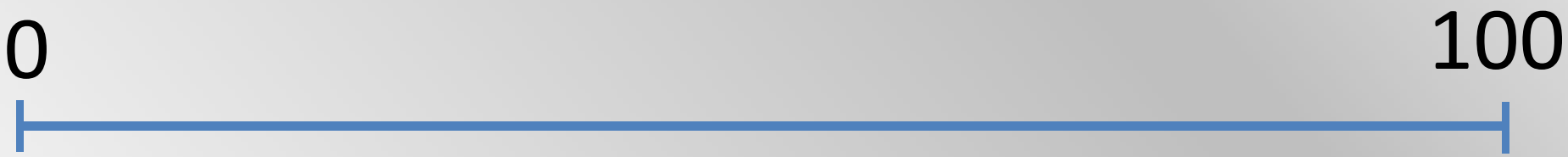

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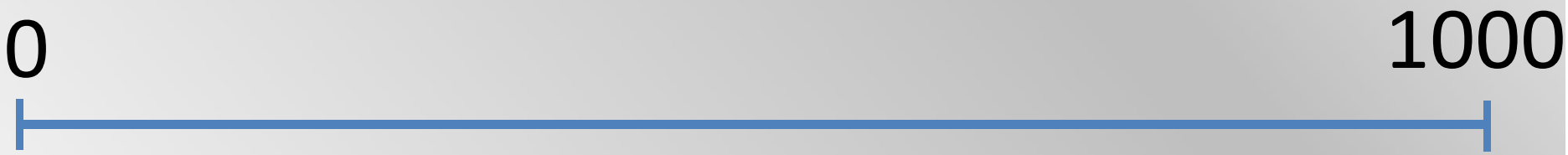
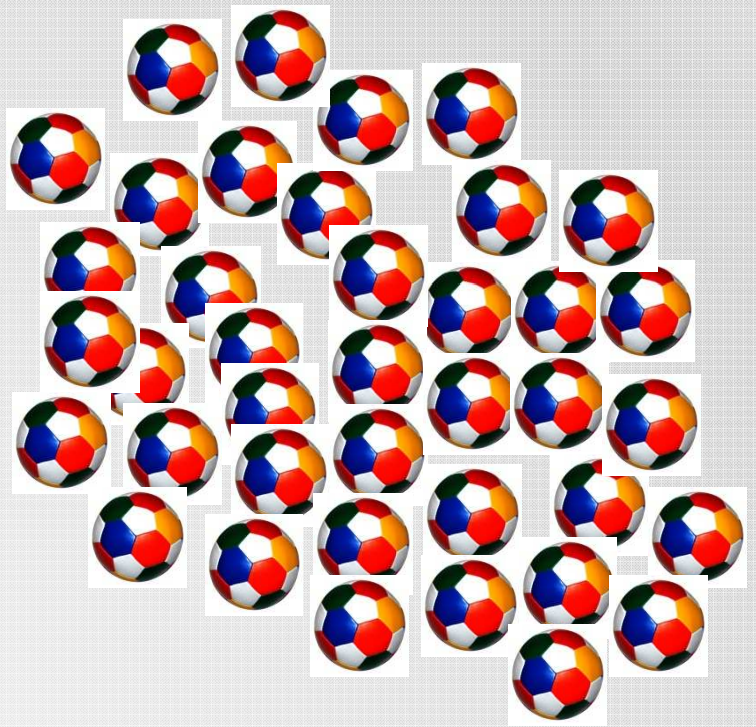


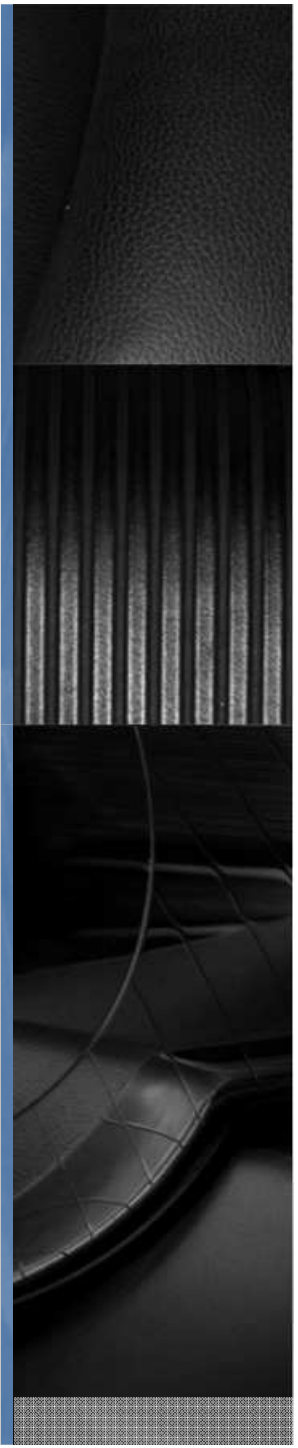
How many balls? Estimate.



Which is more? Click on more

4

2



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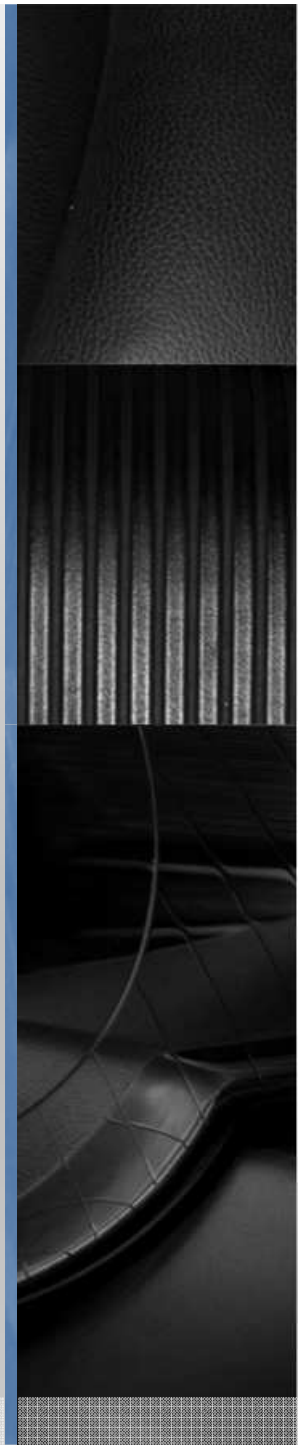

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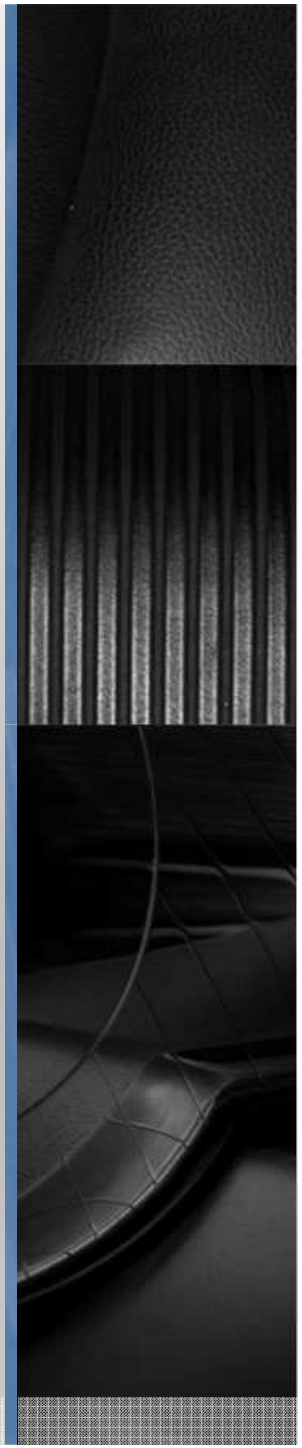

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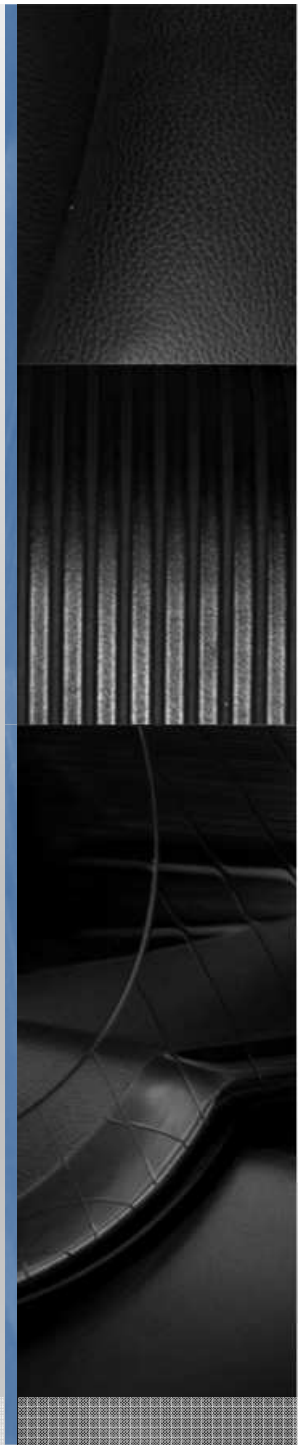

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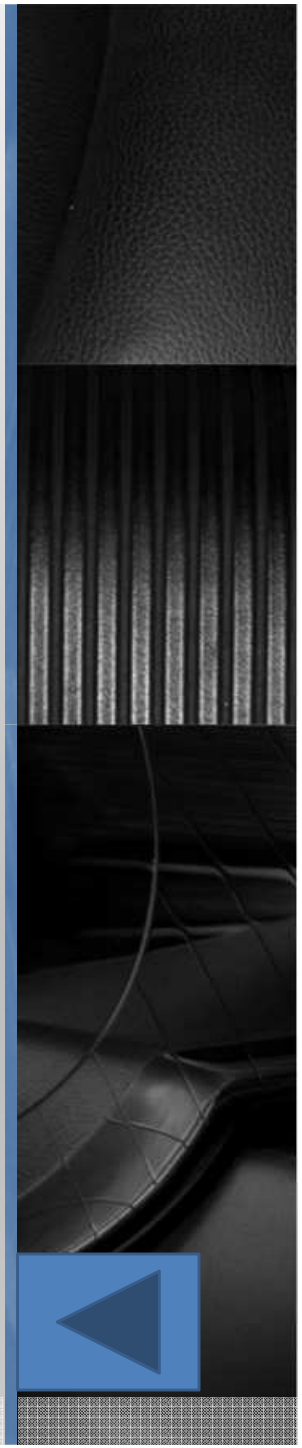

Mental calculation

addition	subtraction	multiplication	division
2 + 2 = …	10 – 5 = …	2 x 3 = …	9 ÷ 3 = …
20 + 20 = …	10 – 6 = …	20 x 30 = …	90 ÷ 3 = …
22 + 23 = …	20 – 10 = …	20 x 32 = …	90 ÷ 30 = …
16 + 14 = …	20 – 15 = …	28 x 20 = …	96 ÷ 32 = …
16 + 15 = …	20 – 6 = …	18 x 32 = …	100 ÷ 3 = …
25 + 26 = …	30 – 14 = …	13 x 27 = …	100 ÷ 25 = …