

10. The Ranking of the Elementary Perceptual Tasks

#2

Ranking on accuracy

Ranking on accuracy

- **Goal:** to produce an ordering of the 10 elementary perceptual tasks regarding the **accuracy** with which people can extract quantitative information by using them.

Ranking on accuracy

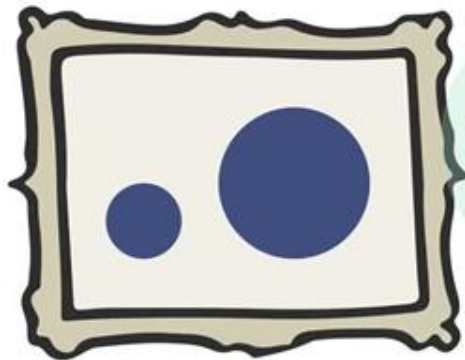
- **Goal:** to produce an ordering of the 10 elementary perceptual tasks regarding the **accuracy** with which people can extract quantitative information by using them.

*"We are not saying that the primary purpose of a graphic is to convey numbers with as many decimal places as possible (...)
If this were the only goal, tables would be better"*

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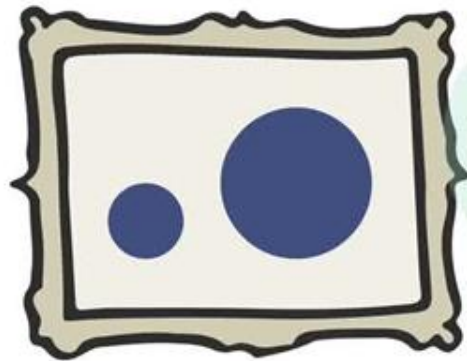
How many times is B's area larger than A's?



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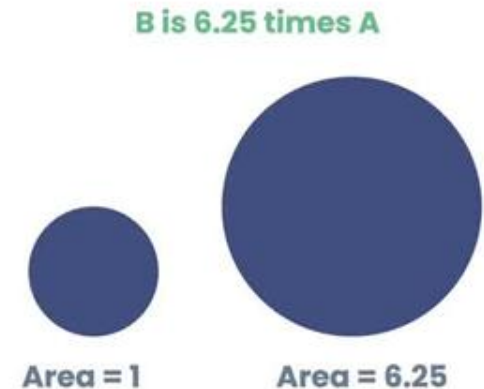
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How many times is B's area larger than A's?



THE USER'S GUESSED PROPORTION

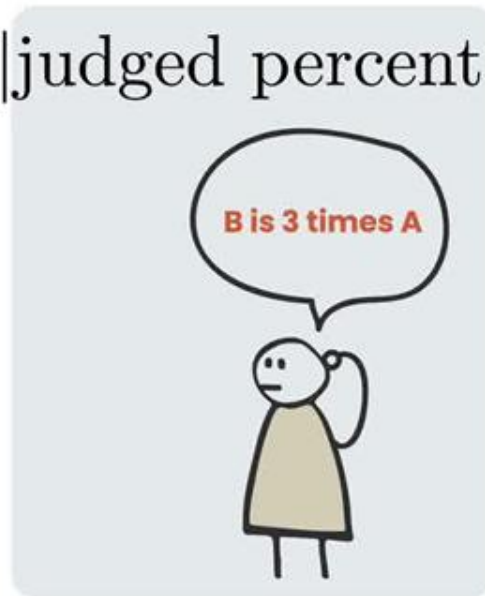


THE REAL PROPORTION

Ranking on accuracy

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$$\log_2(|\text{judged percent} - \text{true percent}| + \frac{1}{8})$$



**THE USER'S GUESSED
PROPORTION**



THE REAL PROPORTION

Elementary perceptual tasks: ranking

Cleveland & McGill (1984). Ordered from more accurate to less accurate.

#1



Position in
common scale

Elementary perceptual tasks: ranking

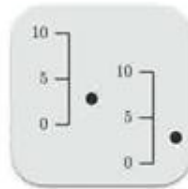
Cleveland & McGill (1984). Ordered from more accurate to less accurate.

#1



Position in
common scale

#2



Position in non
aligned scales

Elementary perceptual tasks: ranking

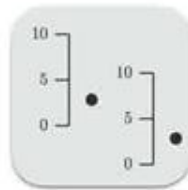
Cleveland & McGill (1984). Ordered from more accurate to less accurate.

#1



Position in
common scale

#2



Position in non
aligned scales

#3



Length



Direction



Angle

Elementary perceptual tasks: ranking

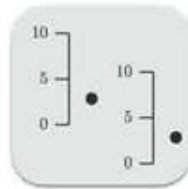
Cleveland & McGill (1984). Ordered from more accurate to less accurate.

#1



Position in common scale

#2



Position in non aligned scales

#3



Length



Direction



Angle

#4



Area

Elementary perceptual tasks: ranking

Cleveland & McGill (1984). Ordered from more accurate to less accurate.

#1



Position in common scale

#2



Position in non aligned scales

#3



Length

Direction

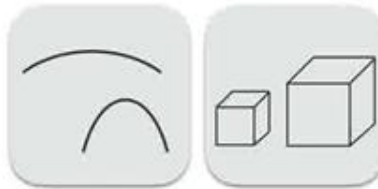
Angle

#4



Area

#5



Curvature

Volume

#6



Shading

Color saturation

What now?