Ex Survey 300 college students

↳ 100 read War and Peace (WP)

↳ 120 read Crime and Punishment (CP)

↳ 100 read The Brothers Karamazov (BK)

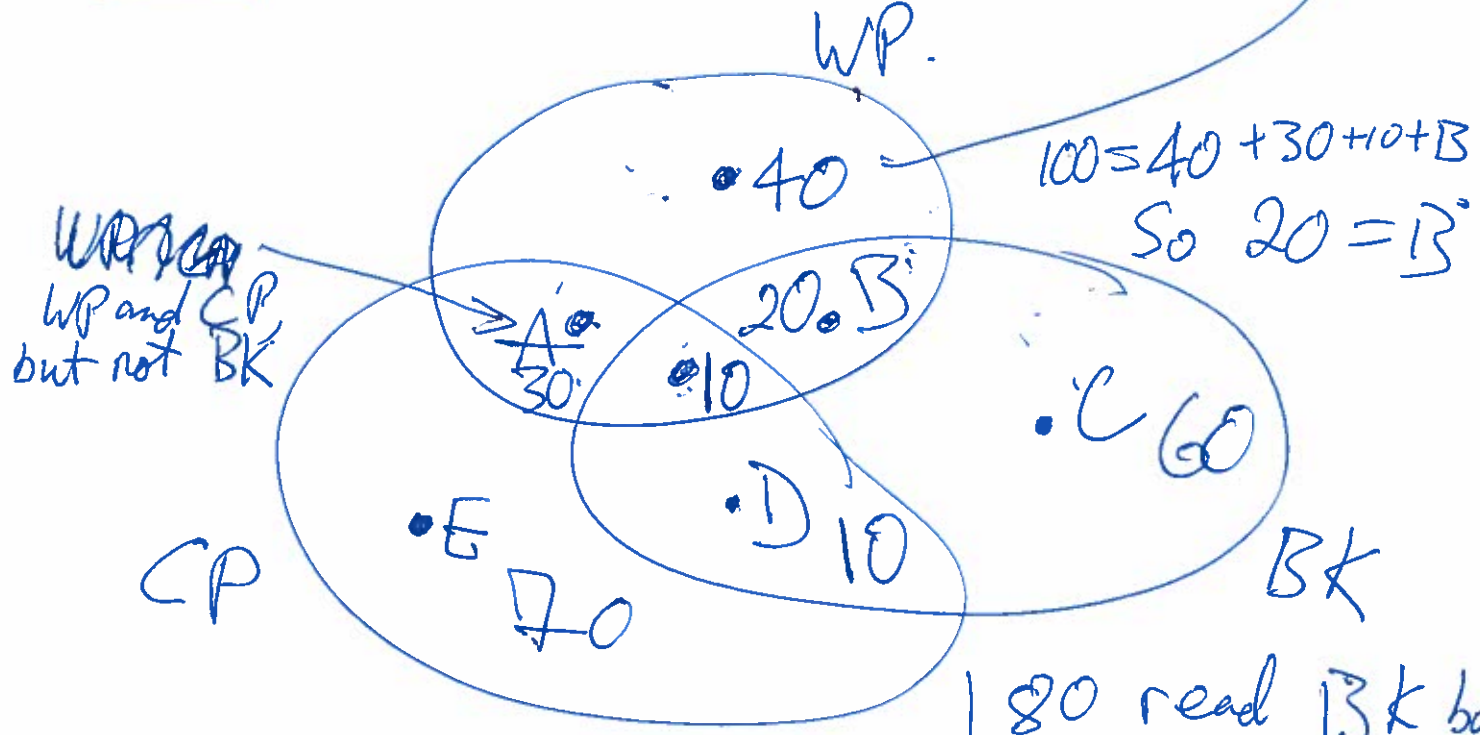
↳ 40 read only WP

↳ 70 read WP but not BK

↳ 80 read BK but not CP

↳ 10 read all 3

How many students read none of these novels?



WP and CP but not BK

$100 = 40 + 30 + 10 + B$

So $20 = B$

70 read WP but not BK

$70 = 40 + A$

$A = 30$

80 read BK but not CP

100 read BK

$10 + B + C + D = 100$

$-\quad B + C = 80$

$10 + D = 20$

$40+30+10+20+60+10+70=240$

So $300-240=60$ students read none of the books.

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x3 **Recall** Let A and B be finite sets.

Rule of Sum If A and B are disjoint, then $n(A \cup B) = n(A) + n(B)$

Rule of Product $n(A \times B) = n(A)\, n(B)$

Ex 3-course meal at a restaurant

$(\_, \_, \_)$

↑ #course1 ↑ #course2 ↑ #course3

↳ 5 apps
↳ 34 entrees
↳ 10 desserts

$5 \times 34 \times 10 = 5 \cdot 340 = 1700$ possible 3-course meals

↑ WebAssign

↑ You can leave on quiz/test

Ex 15 flavors of ice cream, 3 cone sizes for IC | 5 flavors yogurt, 2 cup sizes for yogurt

$(\_, \_)$ Flavor, Cone

$15 \cdot 3 = 45$ possible ice creams

$(\_, \_)$

$5 \cdot 2 = 10$ yogurt options

$55 = 45 + 10$ desserts