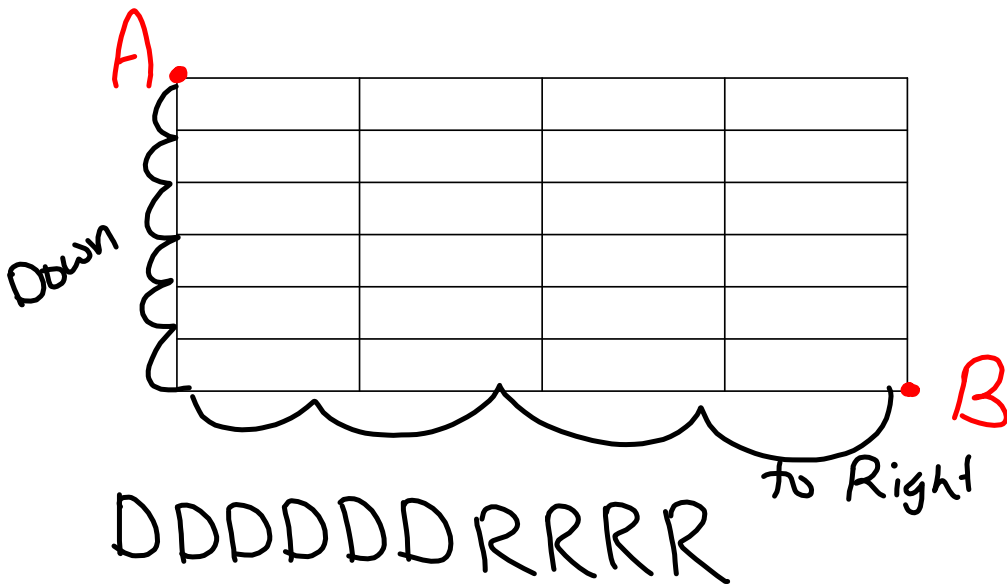


Path / Route Questions

$$\frac{n!}{a! \cdot b! \cdot c!}$$



$$\frac{10!}{6! \cdot 4!}$$

Permutations Sheet

1. $9P_4 = 3024$

2. $4P_2 = 12$

3. $12P_3$ or $12 \times 11 \times 10$
 $= 1320$

4. BBWWRRR
 $\frac{n!}{a!b!c!} = \frac{7!}{2!2!3!} = 210$

5. $\frac{3! \cdot 4!}{4!} = 3! \cdot 4! = 144$

6a) $n=6$

b) $n=5$

7. 60

8. 4320

9. 462

10. 11880

11. 20736

12. omit

13. 4 989 600

14. 19 958 400

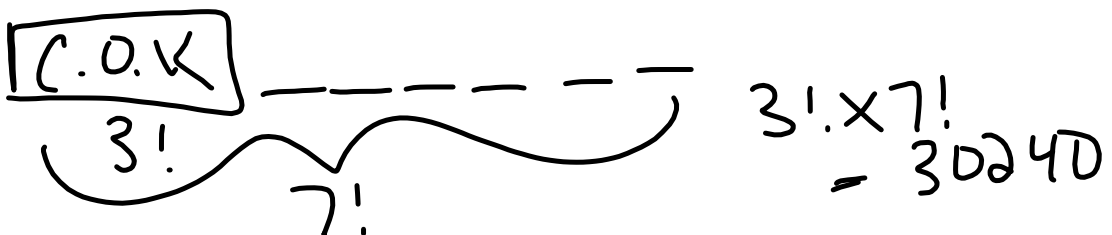
Recap Oct. 13

1. $4 \times 3 \times 2 = 24$

2. $6 \cdot 5 \cdot 4 = 120$

3. $\frac{10!}{2! \cdot 2! \cdot 3!} = 151200$

4. $8 \times 7 = 56$

5. $\boxed{\text{C.O.K}}$  $3! \times 7! = 30240$

6a) 504 b) 420

c) $\frac{1}{n^2 - 7n + 12}$ d) $\frac{1}{n^2 - n}$

$$7. \quad 6 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 \cdot 2 = 8640$$

$$8. \quad 9 \cdot 10 \cdot 10 \cdot 5 = 4500$$

$$9. \quad \frac{2^7}{2! \cdot 7!} = 10080$$

$$10. \quad \frac{n!}{(n-2)!} = 20$$

$$n(n-1) = 20$$

$$n^2 - n - 20 = 0$$

$$(n-5)(n+4) = 0$$

$$\boxed{n=5} \quad n \neq -4$$

$$11. \quad \frac{11!}{5! \cdot 6!} = 462$$

$$12. \quad 4 \cdot 1 \cdot 3 \cdot 2 \cdot 1 = 24$$