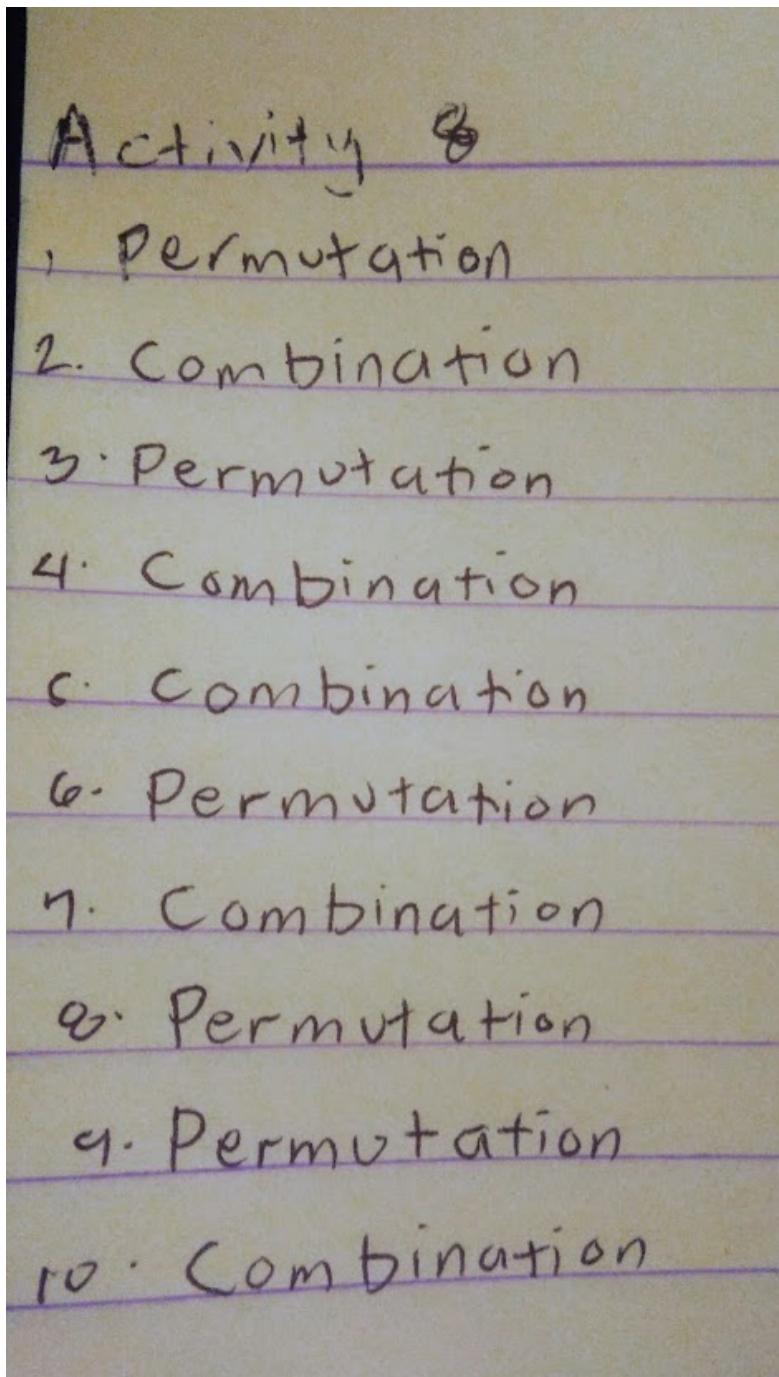


Angeles City Science High School

Math 10

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Section: 10-Hawking



Activity 9

1. 4

2. 1

3. 120

4. 35

5. 10

6. 30

7. 1900

8. 2268

9. 1200 ~~50 200 500~~

10. 4500 ~~1000 1500 1000~~

Activity 10

$$1. n = 6$$

$$r = 3$$

$$\rightarrow {}^n C_r = \frac{n!}{(n-r)! r!}$$

$$\rightarrow {}^6 C_3 = \frac{6!}{(6-3)! 3!}$$

$$\rightarrow {}^6 C_3 = \frac{6 \cdot 5 \cdot 4 \cdot 3 \cdot 2}{(3 \cdot 2)^3 (3 \cdot 2)^3}$$

$$\rightarrow {}^6 C_3 = \frac{720}{36} = \boxed{20}$$

$$2 \cdot n = 50$$

$$r = 5$$

$$\rightarrow {}^{nCr} = \frac{n!}{(n-r)! \cdot r!}$$

$$\rightarrow {}^{50Cs} = \frac{50!}{(50-5)! \cdot 5!}$$

$$\rightarrow {}^{50Cs} = \frac{2,542,512,000}{120}$$

$$\rightarrow {}^{50Cs} = [2,118,760]$$

$$3 \cdot n = 18$$

$$r = 5$$

$$\rightarrow {}^n C_r = \frac{n!}{(n-r)! r!}$$

$$\rightarrow {}^{18} C_5 = \frac{18!}{(18-5)! 5!}$$

$$\rightarrow {}^{18} C_5 = \frac{18 \cdot 17 \cdot 16 \cdot \dots}{(13)! \cdot 5!}$$

$$\rightarrow {}^{18} C_5 = \frac{6,402,373,705,728,000}{(6,227,020,800) (120)}$$

$$\rightarrow {}^{18} C_5 = \boxed{4369}$$

$$4. \quad n = 52$$

$$r = 5$$

$$\rightarrow nCr = \frac{n!}{(n-r)! r!}$$

$$(52-5)! 5!$$

$$\rightarrow 52C5 = \frac{52!}{(52-5)! 5!}$$

$$= \frac{52 \cdot 51 \cdot 50 \cdot 49 \cdot 48 \cdot 47}{(47)! \cdot 5!}$$

$$\rightarrow 52C5 = \boxed{2,898,960}$$

$$5. \quad n = 10$$

$$r = 4$$

$$nCr = \frac{n!}{(n-r)! r!} = \frac{10!}{(10-4)! (4)!} = \frac{3628800}{(6)! (4)!} = \boxed{210}$$