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Math 61 Quiz Week 4 10 minutes. Use pen only

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SECTION: Cross one box below

Day \ T.A.	John	Zach	Sam
Tuesday	1A	1C	1E
Thursday	1B	1D	1F

Problem 1. Circle the option that applies. The number of 3-permutations of $\{1,2,3,4,5\}$ (i.e. injections from $X=\{1,2,3\}$ to $Y=\{1,2,3,4,5\}$) is

(a) 15,

(b) 3!,

(c) 30,

(d) 10,

(e) 5!.

$5 \cdot 4 \cdot 3 = 60$

$n=5$, $k=3$ $\mapsto$ ${}_5P_3 = \frac{5!}{(5-3)!}$

$\frac{n}{n-1}$

$5+3=$

$20-3=60$?

Problem 2. Circle the option that applies. The number of 3-combinations of $\{1,2,3,4,5\}$ is

(a) 15,

(b) 3!,

(c) 30,

(d) 10,

(e) 5!.

$n=5$, $k=3$

${}_5C_3 = \frac{5!}{(5-3)!\,3!} = \frac{5\cdot 4}{2} = 5\cdot 2 = 10$

${}_5C_3 =$

1 5 10 10 5 1

Problem 3. Circle the option that applies How many nonnegative integer solutions are there to $x_1+x_2+x_3+x_4=6$?

(a) $\binom{6}{4}$,

(b) $\binom{9}{3}$,

(c) $\binom{10}{4}$,

(d) $\binom{10}{3}$,

(e) $\binom{9}{4}$.

$6=n$, $k=4$

$\binom{6+4-1}{4-1} = \binom{9}{3}$

Problem 4. Below are parts of the ninth and tenth row of Pascal's triangle: $\binom{9}{0},\ldots,\binom{9}{9}$ and $\binom{10}{0},\ldots,\binom{10}{10}$. Fill in the missing entries.

1 9 36 84 126 126 84 36 9 1

1 10 45 120 210 252 210 120 45 10 1

126 84 210

1 3,6 84 120