

## Summations and Factorials Practice

### Summations

Use the following values for 1 - 3:  $x_1 = 2, x_2 = 4, x_3 = 3$

1.  $\sum x_i =$
2.  $\sum x_i^2 =$
3.  $3 \times \sum x_i =$

### Factorials

4. Express the following in factorial notation:
  - a)  $6 \times 5 \times 4 \times 3 \times 2 \times 1$
  - b)  $8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$
  - c)  $3 \times 2 \times 1$
5. Match each expression on the left with an equivalent expression on the right.

A	$\frac{14!}{13!}$
B	$\frac{52!}{51!}$
C	$\frac{101!}{99!}$
D	$20 \times 19!$
E	$90 \times 8!$
F	$30 \times 4!$

Letter		
	1	10100
	2	6!
	3	52
	4	10!
	5	14
	6	20!

6. Determine the value for each expression. Simplify fully before using a calculator.

a)  $\frac{8!}{5!}$

b)  $2 \times \frac{5!}{2!3!}$