

11-14-13
3rd Trig

Σ Sigma
Summation

$$\sum_{n=5}^7 2n+3 = 45$$

$$n=5 \quad 2 \cdot 5 + 3 = 13$$

$$n=6 \quad 2 \cdot 6 + 3 = 15$$

$$n=7 \quad 2 \cdot 7 + 3 = \frac{17}{45}$$

$$\sum_{n=-2}^0 n^2 = 5$$

$$n=-2 \quad (-2)^2 = 4$$

$$n=-1 \quad (-1)^2 = 1$$

$$n=0 \quad 0^2 = \frac{0}{5}$$

$$\sum_{n=0}^3 2^n = 15$$

$$n=0 \quad 2^0 = 1$$

$$n=1 \quad 2^1 = 2$$

$$n=2 \quad 2^2 = 4$$

$$n=3 \quad 2^3 = \frac{8}{15}$$

$$\sum_{n=-2}^{-1} 2^n = \frac{3}{4}$$

$$n=-2 \quad 2^{-2} = \frac{1}{2^2} = \frac{1}{4}$$

$$n=-1 \quad 2^{-1} = \frac{1}{2} = \frac{1}{2}$$

$$\frac{3}{4}$$

$$5! = 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 120$$

$$\frac{100!}{99!} = \frac{100 \cdot \cancel{99} \cdot \cancel{98} \cdot \cancel{97} \cdots \cancel{2} \cdot \cancel{1}}{\cancel{99} \cdot \cancel{98} \cdot \cancel{97} \cdots \cancel{2} \cdot \cancel{1}} = 100$$

$$\frac{10!}{8!} = \frac{10 \cdot \cancel{9} \cdot \cancel{8} \cdot \cancel{7} \cdots \cancel{2} \cdot \cancel{1}}{\cancel{8} \cdot \cancel{7} \cdots \cancel{2} \cdot \cancel{1}} = 90$$

$$\frac{6! 4!}{5! 3!} = \frac{\cancel{6} \cdot \cancel{5} \cdot \cancel{4} \cdot \cancel{3} \cdot \cancel{2} \cdot \cancel{1} \quad \cancel{4} \cdot \cancel{3} \cdot \cancel{2} \cdot \cancel{1}}{\cancel{5} \cdot \cancel{4} \cdot \cancel{3} \cdot \cancel{2} \cdot \cancel{1} \quad \cancel{3} \cdot \cancel{2} \cdot \cancel{1}} = 24$$

$$\frac{12!}{10!} = \frac{12 \cdot 11 \cdot \cancel{10!}}{\cancel{10!}} = 132$$

$$\frac{97!}{98!} = \frac{\cancel{97} \cdot \cancel{96} \cdots \cancel{2} \cdot \cancel{1}}{98 \cdot \cancel{97} \cdots \cancel{2} \cdot \cancel{1}} = \frac{1}{98}$$

11-14-13
4th Trig

Σ Sigma
Summation

$$\sum_{n=1}^3 4n-5 = 9$$

$n=1 \quad 4 \cdot 1 - 5 = -1$
 $n=2 \quad 4 \cdot 2 - 5 = 3$
 $n=3 \quad 4 \cdot 3 - 5 = 7$
9

$$\sum_{n=4}^6 2n = 30$$

$n=4 \quad 2 \cdot 4 = 8$
 $n=5 \quad 2 \cdot 5 = 10$
 $n=6 \quad 2 \cdot 6 = 12$
30

$$\sum_{n=-1}^{-1} 2^n$$

$n=-1 \quad 2^{-1} = \frac{1}{2}$
 $n=0 \quad 2^0 = 1$
 $n=1 \quad 2^1 = 2$
 $3\frac{1}{2}$

$$4! = 4 \cdot 3 \cdot 2 \cdot 1 = 24$$

$$6! = 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 720$$

$$\frac{100!}{99!} = \frac{100 \cdot \cancel{99} \cdot \cancel{98} \cdots \cancel{2} \cdot \cancel{1}}{\cancel{99} \cdot \cancel{98} \cdots \cancel{2} \cdot \cancel{1}} = 100$$

$$\frac{8!}{6!} = \frac{\cancel{8} \cdot \cancel{7} \cdot \cancel{6} \cdot \cancel{5} \cdot \cancel{4} \cdot \cancel{3} \cdot \cancel{2} \cdot \cancel{1}}{\cancel{6} \cdot \cancel{5} \cdot \cancel{4} \cdot \cancel{3} \cdot \cancel{2} \cdot \cancel{1}}$$

56

$$\frac{10!}{8! \cdot 2!} = \frac{10 \cdot \cancel{9} \cdot \cancel{8}}{\cancel{8} \cdot \cancel{7} \cdot \cancel{6} \cdot \cancel{5} \cdot \cancel{4} \cdot \cancel{3} \cdot \cancel{2} \cdot \cancel{1} \cdot 2 \cdot 1} = \frac{10}{2} = 5$$