# HW 2.5

April 1, 2015 9:08 PM

#1g) $\sum_{x=2n-1}^{n+1} 3^x - 3x$

1d) $\sum_{x=a}^{9} 2x = 78$

$\#\text{ of terms} = n+1-(2n-1)+1$

$n+1-2n+1+1$

$\boxed{\#\text{ of terms} = 3-n}$

$2(1)+2(2)+2(3)+2(4)+2(5)+2(6)+2(7)+2(8)+2(9) = 78$

$2(-1)+2(-2)+2(-3)$

$\boxed{a=4}$

$\boxed{a=-3}$

$3-n \geq 0$

$\boxed{3 \geq n}$

1e) $\sum_{x=3}^{a} x^2 = 814$

$3^2+4^2+5^2+6^2+7^2 \cdots\cdots 13^2 = 814$

2a) $\sum_{x=5}^{10} x^2$

3a) $2+1+\frac{1}{2}+\frac{1}{4}+\frac{1}{8}+\frac{1}{16}+\frac{1}{32}$

$a=2$

$r=\frac{1}{2}$

$t_n = a \times \left(\frac{1}{2}\right)^{n-1}$

$\boxed{\sum_{n=1}^{7} 2\cdot\left(\frac{1}{2}\right)^{n-1}}$

$\boxed{\sum_{n=-1}^{5} \frac{1}{2^n}}$

$\boxed{\sum_{x=-5}^{1} 2^x}$

1h)

$$\sum_{x=-4}^{a} 3(-2)^x = 8192.063$$

$r=-2$

$$\boxed{3(-2)^{-4}} + 3(-2)^{-3} + 3(-2)^{-2} + 3(-2)^{-1} + 3(-2)^{0} + 3(-2)^{1} + 3(-2)$$

$\boxed{a = \frac{3}{16}}$ $\boxed{r=-2}$ $$S = \frac{a(r^n-1)}{r-1} = 8192.063$$

3.

$$\frac{\left(\frac{3}{16}\right)\left((-2)^n-1\right)}{-3} = 8192.063$$

<solve for "n">

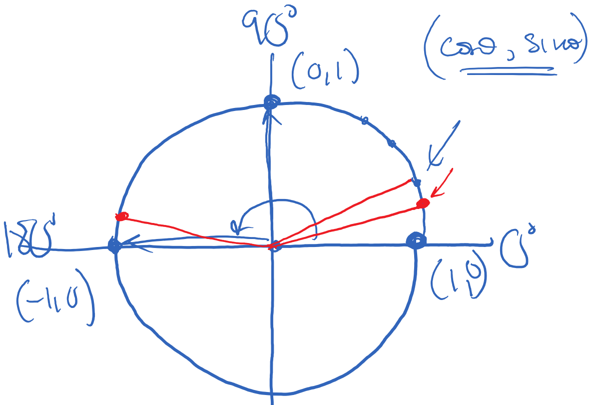
2e) $0^0$ $\boxed{\text{Indeterminate}}$ $0^0 = 1$

chang

$$\sum_{x=-3}^{3} x^x - 1 = (-3^{-3}-1) + (-2^{-2}-1) + (-1^{-1}-1) + (0^0-1) + (1^1-1) + (2^2-1) + (3^3-1)$$

4a) $\sum_{n=1}^{2001} n$

5e) $\sum_{\theta=0^\circ}^{180^\circ} \cos\theta = x.$ $=0$




$\cos 0 = 1$
$\cos 90^\circ = 0$
$\cos 180^\circ = -1$

$\cos 1^\circ = 0.999846$
$\cos 179^\circ = -0.999846$
$\cos 2^\circ = 0.999390$
$\cos 178^\circ = -0.999390$

5f) $\displaystyle\sum_{n=1}^{\infty} 3(x)^{n-1} + \sum_{n=1}^{\infty} 5(x^2)^{n-1} = 18$

$$\sum_{n=1}^{\infty} 3(x)^{n-1} = 3 + 3x + 3x^2 + 3x^3 + 3x^4 \dots\dots$$

$$= \frac{3}{1-x} \quad \text{only true if } \boxed{-1<x<1}$$

$$\sum_{n=1}^{\infty} 5(x^2)^{n-1} = 5 + 5x^2 + 5(x^2)^2 + 5(x^2)^3 + 5(x^2)^4 \dots$$

$$= \frac{5}{1-x^2} \quad \text{only true if } \boxed{-1<x<1}$$

$$\frac{3}{1-x} + \frac{5}{1-x^2} = 18$$

$$\frac{3}{(1-x)}\frac{(1+x)}{(1+x)} + \frac{5}{(1+x)(1-x)} = \frac{18(1-x^2)}{(1-x^2)}$$

$$\frac{3+3x+5}{\cancel{(1-x)(1+x)}} = \frac{18(1-x^2)}{\cancel{(1-x^2)}}$$

$$8+3x = 18-18x^2$$

$$18x^2 + 3x - 10 = 0$$

$$(3x-2)(6x+5) = 0$$

$$\boxed{x = \frac{2}{3} \qquad x = -\frac{5}{6}}$$

$$\boxed{(1+x)(1-x) = 1-x^2}$$

$$x = 1$$

6) $\displaystyle\sum_{m=1}^{n} (-1)^m = (-1) + (1) + (-1) + (1) + (-1)$

$=$ Indeterminate