Precalc

Review Ch. 12

Whiteboards?

Quiz 12.7-12.8 Tues
Test Ch. 12 Wed.

/r/ <1

Lesson 12-4 *(Pages 786–793)*

Use the ratio test to determine whether each series is *convergent* or *divergent*.

1. $1^2 + 2^2 + 4^2 + 8^2 + \cdots$ 2. $\frac{1}{3} + \frac{2}{3} + 1 + \frac{4}{3} \cdots$

$$\frac{(2^n)^2}{(2^{n-1})^2} = \frac{2^{2n}}{2^{2n-2}} = \frac{2^n \cdot 2^n}{2^n 2^n 2^{-1} 2^{-1}} = \frac{1}{2^{-1} 2^{-1}}$$

$$= 2 \cdot 2 = 4$$

Stuck yesterday...

Will give comparison test samples

Use the comparison test to determine whether each series is *convergent* or *dive*

5. $\frac{7}{7} + \frac{7}{13} + \frac{7}{19} + \frac{7}{25} + \cdots$

6. $\frac{1}{2^2} + \frac{1}{4^2} + \frac{1}{6^2} + \frac{1}{8^2} + \cdots$

1 2 3 4 n

$\frac{1}{(2n)^2}$

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

Conv. $\frac{1}{2^2}$ $\frac{1}{4 \cdot 2^2}$

$\frac{1}{4}$ $\frac{1}{16}$

Express each series using sigma notation

33. $-1 + 1 + 3 + 5 + \cdots$

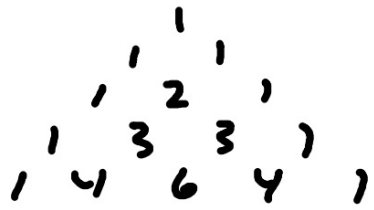
34. $2 + 5 + 10 + 17 + \cdots + 82$

$$\sum_{n=1}^{9} n^2+1$$

Use the Binomial Theorem to expand each binomial.

35. $(a - 4)^6$

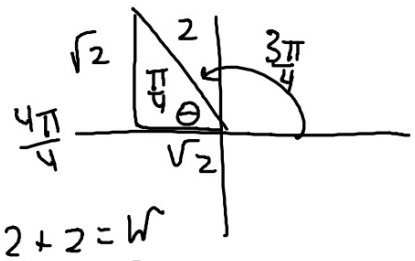
36. $(2r + 3s)^4$



$1(2r)^4 + 4(2r)^3(3s)^1 + 6(2r)^2(3s)^2 + 4(2r)^1(3s)^3 + 1(3s)^4$

$16r^4 + 4 \cdot 8r^3 \cdot 3s + 6 \cdot 4r^2 \cdot 9s^2 + 4 \cdot 2r \cdot 27s^3 + 81s^4$

$-\sqrt{2} + \sqrt{2}\,i$



$2 + 2 = h^2$

$4 = h^2$

$\tan^{-1}\frac{\sqrt{2}}{\sqrt{2}}$

$\theta = 45$

$2\,\mathrm{cis}\left(\frac{3\pi}{4}\right)$

$re^{i\theta}$

$2e^{\frac{3\pi}{4}i}$

SGR p. 830