No.

Date :

d. Buktikan $3^{2n} + 2^{2n+2}$ habis dibagi 5.

1) $n = 1$

$3^{2n} + 2^{2.n+2}$

$3^{2.1} + 2^{2.1+2}$

$3^{2} + 2^{4}$

$9 + 16 = 25$ → habis dibagi 5.

benar.

2) $n = k$

$3^{2.n} + 2^{2.n+2}$

$3^{2.k} + 2^{2.k+2}$

$3^{2k} + 2^{2k} \cdot 2^{2}$

$3^{2k} + 4 \cdot 2^{2k}$ → Asumsikan habis dibagi 5.

sehingga

$3^{2k} + (4 \cdot 2^{2k}) = 5p$

$3^{2k} = 5p - (4 \cdot 2^{2k})$.

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3)) $n = k+1$

$3^{2.n} + 2^{2.n+2}$

$3^{2.(k+1)} + 2^{2.(k+1)+2}$

$3^{2k+2} + 2^{2k+2+2}$

$3^{2k+2} + 2^{2k+4}$

$3^{2k} \cdot 3^{2} + 2^{2k} \cdot 2^{4}$

→ nilai dari pers 2

$5p - (4 \cdot 2^{2k}) \cdot 9 + 2^{2k} \cdot 16$

(anggap $2^{2k} = a$) sehingga

$5p - (4.a) \cdot 9 + a \cdot 16$

$5p - 4a \cdot 9 + 16a$

$5p - 36a + 16a$

$5p - 20a$

↓

habis dibagi 5. → terbukti.