

TOÁN NÂNG CAO NỀN TẢNG CHUYÊN LỚP 7
HƯỚNG DẪN ĐỀ BÀI TẬP VỀ NHÀ
Liên hệ đăng kí học: 0832.64.64.64

CA 1

Câu 1. Tính tổng: $B = 1.3 + 3.5 + 5.7 + \dots + 99.101$.

Lời giải:

Ta có:

$$6B = 1.3.6 + 3.5.6 + 5.7.6 + \dots + 99.101.6$$

$$6B = 1.3.(5+1) + 3.5.(7-1) + 5.7.(9-3) + \dots + 99.101.(103-97)$$

$$= (1.3.1 + 1.3.5 + 3.5.7 + 5.7.9 + \dots + 97.99.101 + 99.101.103) - (1.3.5 + 3.5.7 + \dots + 97.99.101)$$

$$= 3 + 99.101.103 = 1029900$$

$$\text{Suy ra: } B = \frac{1029900}{6} = 171650.$$

CA 2

Câu 1. Tính giá trị các biểu thức sau:

$$1) A = -5^{22} - \left\{ -222 - \left[-122 - (100 - 5^{22}) + 2022 \right] \right\}$$

$$2) B = 1 + \frac{1}{2}(1+2) + \frac{1}{3}(1+2+3) + \dots + \frac{1}{20}(1+2+3+\dots+20)$$

$$3) C = \frac{5 \cdot 4^6 \cdot 9^4 - 3^9 \cdot (-8)^4}{4 \cdot 2^{13} \cdot 3^8 + 2 \cdot 8^4 \cdot (-27)^3}$$

Đáp án:

$$a) A = -5^{22} - \left\{ -222 - \left[-122 - (100 - 5^{22}) + 2022 \right] \right\}$$

$$A = -5^{22} + 222 + \left[-122 - (100 - 5^{22}) + 2022 \right]$$

$$A = -5^{22} + 222 - 122 - (100 - 5^{22}) + 2022$$

$$A = -5^{22} + 222 - 122 - 100 + 5^{22} + 2022$$

$$A = (-5^{22} + 5^{22}) + (222 - 122 - 100) + 2022 = 2022$$

b)

$$B = 1 + \frac{1}{2}(1+2) + \frac{1}{3}(1+2+3) + \dots + \frac{1}{20}(1+2+3+\dots+20)$$

$$B = 1 + \frac{1}{2} \cdot \frac{2 \cdot 3}{2} + \frac{1}{3} \cdot \frac{3 \cdot 4}{2} + \dots + \frac{1}{20} \cdot \frac{20 \cdot 21}{2}$$

$$B = \frac{2}{2} + \frac{3}{2} + \frac{4}{2} + \dots + \frac{21}{2}$$

$$B = \frac{1}{2}(2+3+4+\dots+21) = \frac{1}{2}(1+2+3+4+\dots+20) = \frac{1}{2} \cdot \frac{20 \cdot 21}{2} = 105$$

c)

$$C = \frac{5 \cdot 4^6 \cdot 9^4 - 3^9 \cdot (-8)^4}{4 \cdot 2^{13} \cdot 3^8 + 2 \cdot 8^4 \cdot (-27)^3} = \frac{5 \cdot 4^6 \cdot 9^4 - 3^9 \cdot 8^4}{4 \cdot 2^{13} \cdot 3^8 - 2 \cdot 8^4 \cdot 27^3}$$

$$C = \frac{5 \cdot 2^{12} \cdot 3^8 - 3^9 \cdot 2^{12}}{2^{15} \cdot 3^8 - 2^{13} \cdot 3^9} = \frac{2^{12} \cdot 3^8 (5-3)}{2^{13} \cdot 3^8 (2^2-3)} = \frac{2^{12} \cdot 3^8 \cdot 2}{2^{13} \cdot 3^8} = 1$$

Câu 2. Rút gọn

$$E = \frac{50 - \frac{4}{13} + \frac{2}{15} - \frac{2}{17}}{100 - \frac{8}{13} + \frac{4}{15} - \frac{4}{17}}$$

HD:

$$E = \frac{50 - \frac{4}{13} + \frac{2}{15} - \frac{2}{17}}{100 - \frac{8}{13} + \frac{4}{15} - \frac{4}{17}} = \frac{50 - \frac{4}{13} + \frac{2}{15} - \frac{2}{17}}{2 \left(50 - \frac{4}{13} + \frac{2}{15} - \frac{2}{17} \right)} = \frac{1}{2}$$

VINASTUDY.VN