

**TÀI LIỆU TOÁN NÂNG CAO LỚP 4**  
**HƯỚNG DẪN ĐỀ BÀI TẬP VỀ NHÀ**  
Liên hệ đăng kí học: 0832.64.64.64

**Câu 4.** Tính:  $B = \frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \dots + \frac{1}{29 \times 30}$

**HD**

$$B = \frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \dots + \frac{1}{29 \times 30}$$

$$B = \frac{2-1}{1 \times 2} + \frac{3-2}{2 \times 3} + \frac{4-3}{3 \times 4} + \dots + \frac{30-29}{29 \times 30}$$

$$B = \frac{2}{1 \times 2} - \frac{1}{1 \times 2} + \frac{3}{2 \times 3} - \frac{2}{2 \times 3} + \frac{4}{3 \times 4} - \frac{3}{3 \times 4} + \dots + \frac{30}{29 \times 30} - \frac{29}{29 \times 30}$$

$$B = \frac{1}{1} - \frac{1}{2} + \frac{1}{2} - \frac{1}{3} + \frac{1}{3} - \frac{1}{4} + \dots + \frac{1}{29} - \frac{1}{30}$$

$$B = \frac{1}{1} - \frac{1}{30} = \frac{29}{30}$$

**Câu 8.** Tính tổng:  $D = \frac{2}{1 \times 3} + \frac{2}{3 \times 5} + \frac{2}{5 \times 7} + \dots + \frac{2}{97 \times 99} + \frac{2}{99 \times 101}$ .

**HD**

$$D = \frac{2}{1 \times 3} + \frac{2}{3 \times 5} + \frac{2}{5 \times 7} + \dots + \frac{2}{97 \times 99} + \frac{2}{99 \times 101}$$

$$D = \frac{3-1}{1 \times 3} + \frac{5-3}{3 \times 5} + \frac{7-5}{5 \times 7} + \dots + \frac{99-97}{97 \times 99} + \frac{101-99}{99 \times 101}$$

$$D = \frac{3}{1 \times 3} - \frac{1}{1 \times 3} + \frac{5}{3 \times 5} - \frac{3}{3 \times 5} + \dots + \frac{99}{97 \times 99} - \frac{97}{97 \times 99} + \frac{101}{99 \times 101} - \frac{99}{99 \times 101}$$

$$D = \frac{1}{1} - \frac{1}{3} + \frac{1}{3} - \frac{1}{5} + \dots + \frac{1}{97} - \frac{1}{99} + \frac{1}{99} - \frac{1}{101}$$

$$D = \frac{1}{1} - \frac{1}{101} = \frac{100}{101}$$

**Câu 9.** Tính tổng:  $E = \frac{3}{1 \times 4} + \frac{3}{4 \times 7} + \frac{3}{7 \times 10} + \dots + \frac{3}{88 \times 91} + \frac{3}{91 \times 94}$ .

**HD**

$$E = \frac{3}{1 \times 4} + \frac{3}{4 \times 7} + \frac{3}{7 \times 10} + \dots + \frac{3}{88 \times 91} + \frac{3}{91 \times 94}$$

$$E = \frac{4-1}{1 \times 4} + \frac{7-4}{4 \times 7} + \frac{10-7}{7 \times 10} + \dots + \frac{91-88}{88 \times 91} + \frac{94-91}{91 \times 94}$$

$$E = \frac{4}{1 \times 4} - \frac{1}{1 \times 4} + \frac{7}{4 \times 7} - \frac{4}{4 \times 7} + \frac{10}{7 \times 10} - \frac{7}{7 \times 10} + \dots + \frac{91}{88 \times 91} - \frac{88}{88 \times 91} + \frac{94}{91 \times 94} - \frac{91}{91 \times 94}$$

$$E = \frac{1}{1} - \frac{1}{4} + \frac{1}{4} - \frac{1}{7} + \frac{1}{7} - \frac{1}{10} + \dots + \frac{1}{88} - \frac{1}{91} + \frac{1}{91} - \frac{1}{94}$$

$$E = \frac{1}{1} - \frac{1}{94} = \frac{93}{94}$$

**Câu 15 (Amsterdam).** Thực hiện phép tính sau:

$$2 \times \left( \frac{1}{1 \times 3} + \frac{1}{3 \times 5} + \frac{1}{5 \times 7} + \dots + \frac{1}{13 \times 15} \right)$$

**HD**

$$2 \times \left( \frac{1}{1 \times 3} + \frac{1}{3 \times 5} + \frac{1}{5 \times 7} + \dots + \frac{1}{13 \times 15} \right)$$

$$= \frac{2}{1 \times 3} + \frac{2}{3 \times 5} + \frac{2}{5 \times 7} + \dots + \frac{2}{13 \times 15}$$

$$= \frac{3-1}{1 \times 3} + \frac{5-3}{3 \times 5} + \frac{7-5}{5 \times 7} + \dots + \frac{15-13}{13 \times 15}$$

$$= \frac{3}{1 \times 3} - \frac{1}{1 \times 3} + \frac{5}{3 \times 5} - \frac{3}{3 \times 5} + \frac{7}{5 \times 7} - \frac{5}{5 \times 7} + \dots + \frac{15}{13 \times 15} - \frac{13}{13 \times 15}$$

$$= \frac{1}{1} - \frac{1}{3} + \frac{1}{3} - \frac{1}{5} + \frac{1}{5} - \frac{1}{7} + \dots + \frac{1}{13} - \frac{1}{15}$$

$$= \frac{1}{1} - \frac{1}{15} = \frac{14}{15}$$