

§11. Tính chất cơ bản của phép nhân phân số

89.

a	$\frac{-3}{4}$	$\frac{5}{9}$	$\frac{-7}{25}$	$\frac{7}{-3}$	$\frac{4}{7}$	$\frac{-4}{19}$	$\frac{-18}{15}$	0	$\frac{50}{21}$
b	$\frac{4}{7}$	$\frac{-18}{15}$	$\frac{50}{21}$	$\frac{-3}{7}$	$\frac{-3}{4}$	1	$\frac{5}{9}$	$\frac{6}{13}$	$\frac{-7}{25}$
a . b	$\frac{-3}{7}$	$\frac{-2}{3}$	$\frac{-2}{3}$	1	$\frac{-3}{7}$	$\frac{-4}{19}$	$\frac{-2}{3}$	0	$\frac{-2}{3}$

90. $A = \frac{1}{7} \cdot \left(6 + \frac{2}{7} + \frac{5}{7}\right) = \frac{1}{7} \cdot 7 = 1$; $B = \frac{4}{9} \cdot \left(\frac{13}{3} - \frac{40}{3}\right) = \frac{4}{9} \cdot (-9) = -4$.

91. $M = \left(\frac{8}{3} \cdot \frac{3}{8}\right) \cdot \left(\frac{2}{5} \cdot 10\right) \cdot \frac{19}{92} = 1 \cdot 4 \cdot \frac{19}{92} = \frac{19}{23}$;

$$N = \frac{5}{7} \cdot \left(\frac{5}{11} + \frac{2}{11} - \frac{14}{11}\right) = \frac{5}{7} \cdot \frac{-7}{11} = \frac{-5}{11} ;$$

$$Q = \left(\frac{1}{99} + \frac{12}{999} - \frac{123}{9999}\right) \cdot 0 = 0 .$$

92. Việt đi quãng đường AC trong :

$$7\text{h}30\text{ph} - 6\text{h}50\text{ph} = 40\text{ph} = \frac{2}{3}\text{h}.$$

Nam đi quãng đường BC trong :

$$7\text{h}30\text{ph} - 7\text{h}10\text{ph} = 20\text{ph} = \frac{1}{3}\text{h}.$$

Quãng đường AC dài :

$$15 \cdot \frac{2}{3} = 10 \text{ (km)}.$$

Quãng đường BC dài :

$$12 \cdot \frac{1}{3} = 4 \text{ (km)}.$$

Quãng đường AB dài :

$$10 + 4 = 14 \text{ (km)}.$$

93. Sau khi giặt, cứ 1m vải theo chiều dài sẽ còn lại :

$$\frac{15}{16} \cdot \frac{17}{18} \cdot \frac{8}{10} = \frac{17}{24} \text{ (m}^2\text{) vải,}$$

vì vậy phải mua 24m để sau khi giặt có 17m² vải.

94. $A = \frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot \frac{4}{5} = \frac{1}{5}$;

$$B = \frac{2 \cdot 3 \cdot 4 \cdot 5}{1 \cdot 2 \cdot 3 \cdot 4} \cdot \frac{2 \cdot 3 \cdot 4 \cdot 5}{3 \cdot 4 \cdot 5 \cdot 6} = \frac{5}{3}$$

95.* $M = \left(\frac{1}{3} - \frac{1}{5}\right) + \left(\frac{1}{5} - \frac{1}{7}\right) + \left(\frac{1}{7} - \frac{1}{9}\right) + \dots + \left(\frac{1}{97} - \frac{1}{99}\right) = \frac{1}{3} - \frac{1}{99} = \frac{32}{99}$.

Bài tập bổ sung

11.1. Chọn (B).

11.2. Chọn (D).

11.3. $P = \frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \dots \frac{98}{99} = \frac{1}{99}$.

11.4. $\frac{1}{101} + \frac{1}{102} + \dots + \frac{1}{299} + \frac{1}{300} > \frac{1}{300} \cdot 200 = \frac{2}{3}$.

11.5.* $A = \frac{1.3}{2.2} \cdot \frac{2.4}{3.3} \cdot \frac{3.5}{4.4} \dots \frac{29.31}{30.30} = \frac{1.2.3 \dots 29}{2.3.4 \dots 30} \cdot \frac{3.4.5 \dots 31}{2.3.4 \dots 30}$
 $= \frac{1}{30} \cdot \frac{31}{2} = \frac{31}{60}$.

11.6.* $\frac{1}{5} + \frac{1}{6} + \frac{1}{7} + \frac{1}{8} + \frac{1}{9} < \frac{1}{5} \cdot 5 = 1$ (1)

$$\frac{1}{10} + \frac{1}{11} + \dots + \frac{1}{16} + \frac{1}{17} < \frac{1}{8} \cdot 8 = 1$$
 (2)

Cộng theo từng vế (1) và (2) ta được :

$$\frac{1}{5} + \frac{1}{6} + \dots + \frac{1}{17} < 2.$$

11.7.* Ta có nhận xét : $\frac{1}{1.2} - \frac{1}{2.3} = \frac{3-1}{1.2.3} = \frac{2}{1.2.3}$;

$$\frac{1}{2.3} - \frac{1}{3.4} = \frac{4-2}{2.3.4} = \frac{2}{2.3.4} ; \dots$$

Suy ra : $\frac{1}{1.2.3} = \frac{1}{2} \left(\frac{1}{1.2} - \frac{1}{2.3} \right)$;

$$\frac{1}{2.3.4} = \frac{1}{2} \left(\frac{1}{2.3} - \frac{1}{3.4} \right) ; \dots$$

Do đó : $M = \frac{1}{2} \left(\frac{1}{1.2} - \frac{1}{2.3} + \frac{1}{2.3} - \frac{1}{3.4} + \dots + \frac{1}{10.11} - \frac{1}{11.12} \right)$

$$= \frac{1}{2} \left(\frac{1}{1.2} - \frac{1}{11.12} \right) = \frac{1}{2} \left(\frac{1}{2} - \frac{1}{11.12} \right)$$

$$= \frac{1}{2} \cdot \frac{65}{132} = \frac{65}{264}.$$