

1. 다음 연립방정식을 만족하는 $10x + 10y$ 의 값은?

$$\begin{cases} \frac{2}{x-1} - \frac{3}{y+1} = 16 \\ \frac{3}{x-1} + \frac{5}{y+1} = 5 \end{cases}$$

- ① -1 ② -2 ③ -3 ④ -4 ⑤ -5

해설

$$\frac{1}{x-1} = A, \frac{1}{y+1} = B \text{ 라고 하면}$$

$$\begin{cases} 2A - 3B = 16 & \cdots \textcircled{1} \\ 3A + 5B = 5 & \cdots \textcircled{2} \end{cases}$$

$$\textcircled{1} \times 3 - \textcircled{2} \times 2 \text{ 를 하면 } -19B = 38$$

$$\therefore B = -2$$

$$B = -2 \text{ 를 } \textcircled{1} \text{ 식에 대입하면 } 2A + 6 = 16$$

$$\therefore A = 5$$

$$\frac{1}{x-1} = 5, x-1 = \frac{1}{5} \quad \therefore x = \frac{6}{5}$$

$$\frac{1}{y+1} = -2, y+1 = -\frac{1}{2} \quad \therefore y = -\frac{3}{2}$$

$$10x + 10y = 12 + (-15) = -3$$