

76 $(1 - \frac{3}{5})(1 - \frac{3}{8}) \dots (1 - \frac{2}{3k+2})(1 - \frac{3}{3k+5}) \stackrel{?}{=} \frac{2}{3k+5}$

$$\frac{2}{3k+2} \cdot \left(\frac{3k+5-3}{3k+5} \right) \stackrel{?}{=} \frac{2}{3k+5}$$

$$\frac{2}{3k+2} \left(\frac{3k+2}{3k+5} \right) = \frac{2}{3k+5}$$

$n = k+1$ אגף

83 $(\frac{1}{1} + \frac{1}{1})(\frac{1}{2} + \frac{1}{4}) \dots (\frac{1}{k} + \frac{1}{k^2})(\frac{1}{k+1} + \frac{1}{(k+1)^2}) \stackrel{?}{=} \frac{k+2}{(k+1)!}$

$$\frac{k+1}{k!} \cdot \left(\frac{k+1+1}{(k+1)^2} \right) \stackrel{?}{=} \frac{k+2}{(k+1)!}$$

$$\frac{(k+1)}{k!} \cdot \frac{k+2}{(k+1)(k+1)} = \frac{k+2}{(k+1)!}$$

$n = k+1$ אגף

87 $\frac{4}{3 \cdot 7} + \frac{4}{7 \cdot 11} + \dots + \frac{4}{(4k+1)(4k+5)} + \frac{4}{(4k+5)(4k+9)} \stackrel{?}{=} \frac{1}{3} - \frac{1}{4k+9} \quad n = k+1$ אגף

$$\frac{1}{3} - \frac{1}{4k+9} + \frac{4}{(4k+5)(4k+9)} \stackrel{?}{=} \frac{1}{3} - \frac{1}{4k+9} \quad | - \frac{1}{3}$$

$$\frac{-4k-15+4}{(4k+5)(4k+9)} \stackrel{?}{=} -\frac{1}{4k+9}$$

$$\frac{-(4k+11)}{(4k+5)(4k+9)} = -\frac{1}{4k+9}$$

90

$$8+14+\dots+(6k+2) = \frac{2k}{4}(6k+10)$$

$$8+14+\dots+(6k+2)+(6k+6+2) \stackrel{?}{=} \frac{2k+2}{4}(6k+6+10)$$

$$\frac{2k}{4}(6k+10)+(6k+8) \stackrel{?}{=} \frac{2k+2}{4}(6k+16)$$

$$k(3k+5)+(6k+8) \stackrel{?}{=} \frac{2(k+1)}{4} \cdot 2(3k+8)$$

$$3k^2+5k+6k+8 = (k+1)(3k+8)$$

הצגת האינדוקציה
 $n = 2k$ אגף
 $n = 2k+2$ אגף