

1)  $\Delta > 0 \rightarrow \Delta > 0 \rightarrow (a-1)(a-2) \rightarrow a^2 - 3a + 2 \rightarrow$  (P)

1)  $\Delta > 0$   
 $\frac{a+b}{a+b} = \frac{a}{a} + \frac{b}{b} \rightarrow a+b = 2$  ✓  
 $a = 1, b = 1$  ✓

2)  $\frac{a}{a+1} + \frac{b}{b+1} = \frac{a+b}{a+b} = 1$   
 $(a-1)(a+1) = a^2 - 1 = 0 \rightarrow a = \pm 1$   
 $n = -1 \rightarrow n = \frac{1}{-1} = -1$  ✓

3)  $\frac{m}{m+1} + \frac{k}{k+1} = \frac{m+k}{m+k} = 1$   
 $(k-1)(k+1) = k^2 - 1 = 0 \rightarrow k = \pm 1$   
 $m-1 = -1 \rightarrow m = 0$  ✓

4)  $\frac{1}{x} + \frac{1}{y} = \frac{x+y}{xy} = 1 \rightarrow x+y = xy$   
 $x^2 - xy + y^2 = 0 \rightarrow (x-y)^2 = 0 \rightarrow x=y$   
 $\frac{1}{x} + \frac{1}{x} = \frac{2}{x} = 1 \rightarrow x = 2$   
 $\frac{1}{2} + \frac{1}{2} = 1$  ✓

5)  $\frac{1}{x} + \frac{1}{y} = \frac{x+y}{xy} = 1 \rightarrow x+y = xy$   
 $x^2 - xy + y^2 = 0 \rightarrow (x-y)^2 = 0 \rightarrow x=y$   
 $\frac{1}{x} + \frac{1}{x} = \frac{2}{x} = 1 \rightarrow x = 2$   
 $\frac{1}{2} + \frac{1}{2} = 1$  ✓

6)  $\Delta > 0 \rightarrow a-1 < 0 \rightarrow a < 1$  ①  
 $a < 0 \rightarrow a^2 + 1 - 2a = (a-1)^2 > 0 \rightarrow a \neq 1$  ②  
 $\Delta < 0 \rightarrow a > 1$  ③

7)  $\frac{m^2 + n^2}{m-n} = \frac{m^2 + n^2}{m-n} = m+n$   
 $m^2 + n^2 = (m-n)(m+n) = m^2 - n^2$   
 $2n^2 = 0 \rightarrow n = 0$  ✓

8)  $\frac{(a-1)^2}{(a^2+n+1)(a-1)^2} = \frac{1}{a^2+n+1}$   
 $\frac{1}{a^2+n+1} = \frac{1}{a^2+n+1}$   
 $\Delta = 1 - 4 = -3 < 0$  ✓



۲-  $n = 4$  درجه عبارت  $n + m - 1 = (k-2) + m - 1$  است :

$$(k-2) + m - 1 = 4k + m - 9$$

ضریب  $n$  در عبارت  $n + m - 1 = (k-2) + m - 1$  باید صفر باشد چون برای  $n < 4$  عبارت صفت است

$$k - 2 < 0 \rightarrow k < 2 \xrightarrow{\text{ک صفر است}} k = 1$$

$$4k + m - 9 = 0 \xrightarrow{k=1} m = 5$$

$$\frac{m}{n} + k = \boxed{-14}$$