

4.9

$(a, b)$  system

$$(x-a)(1-a) + (y-b)(2-b) = 0^2 \quad (1, 2) \text{ ?}$$

$$x(1-a) + y(2-b) = 0^2 + a(1-a) + b(2-b)$$

$$\frac{3x}{2} + \frac{2y}{2} = 1$$

$$3x + 2y = 2$$

$$\frac{1-a}{3} = \frac{2-b}{2}$$

$$2 - 2a = 6 - 3b \rightarrow \boxed{a = 1.5b - 2}$$

$(3, 1)$  ?  $(1, 2)$  ?

$$(3-a)^2 + (1-b)^2 = (1-a)^2 + (2-b)^2$$

$$9 - 6a + a^2 + 1 - 2b + b^2 = 1 - 2a + a^2 + 4 - 4b + b^2$$

$$4a = 5 + 2b$$

$$4(1.5b - 2) = 5 + 2b$$

$$b = \frac{13}{4}$$

$$a = \frac{23}{8}$$

$$\left(x - \frac{23}{8}\right)^2 + \left(y - \frac{13}{4}\right)^2 = \frac{325}{64}$$