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$d = \sqrt{(x_1-x_2)^2+(y_1-y_2)^2}$

$D_1 = (1,6)$

$d(D_1, C_1) = 2.24$

$d(D_1, C_2) = 5.10$

$d(D_1, C_3 = 6.71$

$D_2 = (5,6)$

$d(D_2, C_1) = 3.61$

$d(D_2, C_2) = 1.41$

$d(D_2, C_3) = 3.61$

$D_3 = (8,7)$

$d(D_3, C_1) = 6.71$

$d(D_3, C_2) = 2$

$d(D_3, C_3) = 4.12$

$D_4 = (3,4)$

$d(D_4, C_1) = 1$

$d(D_4, C_2) = 4.24$

$d(D_4, C_3 = 4.12$

$D_5 = 1.$

$d(D_5, C_1) = 1.41$

$d(D_5, C_2) = 6.4$

D6

$d(D_6, C_1) = 3.61$

$d(D_6, C_2) = 5.10$

$d(D_6, C_3) = 2.24$

D7

$d(D_7, C_1) = 5.83$

$d(D_7, C_2) = 6.08$

$d(D_7, C_3) = 2$

D8

$d(D_8, C_1) = 8.06$

$d(D_8, C_2) = 5.66$

$d(D_8, C_3 = 3$

$m(2.24, 1.41, 2, 1, 1.41, 2.24, 2, 3)$

$= 3$

Excercise2.

Case A.

centres (3, 4.5)
(6, 1.5)
(9, 5)

min-distances.

(1,6) = 2.06
(2,3) = 2.06
(3,4) = 0.5
(6,6) = 2.24
(5,2) = 1.12
(7,1) = 1.41
(8,7) = 2.24
(10,3) = 2.24

max-distance = 2.24

distortion.

$= 2.06^2 + 2.06^2 + 0.5^2 + 2.24^2 + 1.12^2 + 1.41^2 + 2.24^2 + 2.24^2 / 8$

$= 3.38$

case B

centres = (1.67, 4.33)
(6.5, 6.5)
(22/3, 2)

~~min~~ di

min-distance

(1,6) = 1.80

(1,3) = 1.49

(3,4) = 1.37

(5,6) = 1.58

(5,2) = 2.33

(7,1) = 1.05

(8,7) = 1.58

(0,5) = 2.85

max_distance = 2.85

distortion = $(1.8^2 + 1.49^2 + 1.37^2 + 2.33^2 + 1.05^2 + 1.58^2 + 2.85^2)/8$

= 3.37