

# Exercise: draw the generalised preference criteria

Draw the generalised preference criteria for C1, C2 and C4

# Manpower (C1)

Regarding the manpower requirements (C1), you prefer one location to another if the difference is greater than 10. Any difference less than or equal to 10 leads to indifference.

# Power Consumption (C2)

Regarding the power consumption (C2), you are indifferent to differences which are smaller than or equal to 0.

You strictly prefer one location to another if it has more than a 30 megawatt difference.

For differences in power between 0 and 30 (including 30 megawatts, your preference linearly increases.

# Annual maintenance costs (C4)

- Regarding the maintenance costs, you are indifferent to differences which are smaller than or equal to \$10 million. You strictly prefer one location to another if it is more than \$60 million. For differences between \$10 million and \$60 million (including \$60 million) you are mid-way (a preference value of 0.5) between indifference and full preference.

$P_1(a, b)$

1

0

10

$d = f(b) - f(a)$

*(Switched because C1 is minimising)*

Manpower (C1)

$P_2(a, b)$

1

0

30

$d = f(a) - f(b)$

Power Consumption (C2)

$P_4(a, b)$

1

0.5

0

10

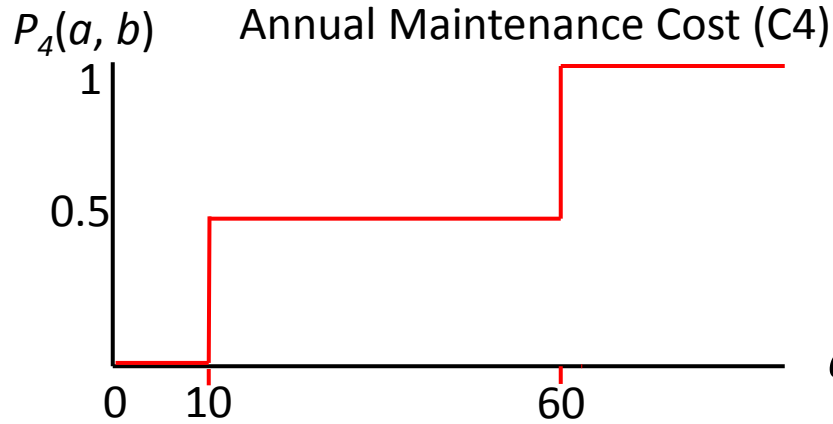
60

$d = f(b) - f(a)$

*(Switched because C4 is minimising)*

Annual Maintenance Cost (C4)

# Clarification on the “switch”



$$d = f(b) - f(a)$$

(Switched because  $C_4$  is minimising)

	$C_1$	$C_2$	$C_3$	$C_4$	$C_5$	$C_6$
	min	max	min	min	min	max
$A_1$	80	90	600	54	8	5
$A_2$	65	58	<b>200</b>	97	<b>1</b>	1

$$a - b = 54 - 97 = -43 = \text{preference value of 0}$$

$$b - a = 97 - 54 = 43 = \text{preference value of 0.5}$$

a ( $A_1$  in this case) is better, so the calculation needs to reflect that.

“b-a” is therefore the correct calculation when minimising.