

```

In [6]:
# 연습문제 8 / 예제(7.17), p236
from math import sqrt
from scipy.stats import t

x = [19, 11, 14, 17, 23, 11, 15, 19, 11, 8]
y = [22, 18, 17, 19, 22, 12, 14, 11, 19, 7]

d = [a - b for a, b in zip(x, y)]
n = len(d)
d_bar = sum(d) / n
s_d = sqrt(sum((x - d_bar)**2 for x in d) / (n - 1))
t_value = t.ppf(0.975, n - 1)
lower = d_bar - t_value * s_d / sqrt(n)
upper = d_bar + t_value * s_d / sqrt(n)

print(f'95% 신뢰 구간 : ({round((lower), 2)}, {round((upper), 2)})\n95% 신뢰 구간 : {round((lower), 2)} < mu(D) < {round((upper), 2)}')
95% 신뢰 구간 : (-4.55, 1.95)

```

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