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– **20. California Speeding** Listed below are recorded speeds (in mi/h) of randomly selected – cars traveling on a section of Highway 405 in Los Angeles (based on data from Sigalert). That part of the highway has a posted speed limit of 65 mi/h. Assume that the standard deviation of speeds is 5.7 mi/h and use a 0.01 significance level to test the claim that the sample is from a population with a mean that is greater than 65 mi/h.

68	68	72	73	65	74	73	72	68	65	65	73	66	71	68	74	66	71	65	73
59	75	70	56	66	75	68	75	62	72	60	73	61	75	58	74	60	73	58	75

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① Diketahui :

$\mu_0 = 65$, $\sigma = 5{,}7$, $n = 40$, $\bar{x} = ?$, $\alpha = 1\%$

Ujung : A

Apakah kecepatan selalu ~~dibawah~~ atas 65 mi/H

Penyelesaian :

- Mean ($\bar{x}$) = 68,375

$$\bar{x} = \frac{x_1 + \dots + x_n}{n} = \frac{2735}{40} = 68{,}375$$

- Hipotesis = Gauss (Z) → Chi Kuadrat

$H_0 = \mu_A \geq 65$

$H_1 = \mu_A < 65$

- Uji bibis → Pihak kanan tidak dibagi 2.

~~$Z_{tab} = 0{,}005 = 2{,}575$~~ → $Z\alpha = 0{,}01 = 2{,}325$

$Z_{hit} = $ ~~2,575~~ 2,325

$$Z_{hit} = \frac{\bar{x} - \mu}{\sigma/\sqrt{n}}$$

$$= \frac{68{,}375 - 65}{5{,}7/\sqrt{40}}$$

$$= 3{,}744$$

$Z_{hit} = 3{,}744 > $ ~~2,575~~ 2,325

Jadi, bisa dikatakan bahwa kecepatan selalu di ~~bawah~~ atas 65 mi/H