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p 340

Z-Score	Confidence Level	α	$\frac{\alpha}{2}$
$z_{.10} = 1.645$	90%	1-.9	.1 .05
$z_{.05} = 1.96$	95%	1-.95	.05 .025
$z_{.01} = 2.575$	99%	1-.99	.01 .005

Confidence Interval

$$\hat{p} = .6$$

$$E = .03$$

$$.57 < p < .63$$

$$.60 \pm .03$$

$$\hat{p} \pm E$$

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21-24

22. $n = 2000$

$X = 400$

95% C.L.

$$\hat{p} = \frac{X}{n} = \frac{400}{2000} = .2$$

$$q = 1 - \hat{p} = 1 - .2 = .8$$

$$\alpha = .05 \quad \alpha/2 = .025$$

① find E

$$E = z_{\alpha/2} \sqrt{\frac{\hat{p}q}{n}}$$

$$E = 1.96 \sqrt{\frac{.2(.8)}{2000}}$$

$$E = .0175$$

② Write Confidence Interval

$$\hat{p} = .2$$

$$.2 \pm .0175$$

$$.1825 < p < .2175$$

\hat{p} and \hat{q} unknown

$$\hat{p} = .5$$

$$\hat{q} = .5$$

26.

$$n = \frac{[Z_{\alpha/2}]^2 \cdot .25}{E^2}$$

\hat{p} \hat{q} unknown

.005 99% C.L.

$$Z_{\alpha/2} = 2.575$$

$$n = \frac{(2.575)^2 (.25)}{(.005)^2}$$

$$n = 66,306.25$$

$$n = 66,307$$

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32.

$$n = 1228$$

$$x = 856$$

$$\hat{p} = \frac{x}{n} = .697$$

$$\hat{q} = 1 - \hat{p} = .303$$

- a) point estimate $\hat{p} = .697$
- b) C.L. 99% $z \rightarrow 2.575$

find E

$$E = 2.575 \sqrt{\frac{(.697)(.303)}{1228}}$$

$$E = .0338$$

Confidence Interval

$$.697 \pm .0338$$

$$.6632 < p < .7308$$

- c) We are 99% confident that the percentage of lawsuits dropped/dismissed is between 66.32% and 73.08%

Yes Majority
over 50%