Test whether the type of victim is independent of the type of offence

$H_0: \rho = 0$ (*there is no association between x and y*)
$H_1: \rho < 0$ (*there is an inverse association between x and y*)

Is there evidence of an association between the drug given and the level of consciousness 30 minutes later?
(*Contingency table*)

H_0: *the survival of accident victims is independent of treatment given*
H_1: *the survival of accident victims is not independent of treatment given*

Test for an inverse association between the scores of students in sociology and research methods
(*Spearman's*)

$H_0: \rho = 0$; *there is no association between IQ and Maths scores*
$H_1: \rho > 0$; *there is a positive association between IQ and Maths scores*

Is there evidence that the mean lifetime of batteries has decreased from 100 hours?

$H_0: \rho = 0$ (*there is no association between x and y*)
$H_1: \rho > 0$ (*there is a positive association between x and y*)

$H_0: \mu = 100h$ (*the mean is 100h*)
$H_1: \mu \neq 100h$ (*the mean is not 100h*)

Test whether the data are consistent with the mean time to complete a transaction being 24 seconds.

$H_0: \mu = 90s$ (*the mean is 90s*)
$H_1: \mu > 90s$ (*the mean exceeds 90s*)

Investigate the golf instructor's claim that the mean number of putts that Saqab takes per round after lessons with him will reduce from Saqab's present mean of 36.

$H_0: \mu = 24s$ (*the mean time to complete a transaction is 24 s*).
$H_1: \mu < 24s$ (*the mean time to complete a transaction is less than 24 s*).

$H_0: \mu = 5$ (*the mean waiting time is 5 minutes*)
$H_1: \mu > 5$ (*the mean waiting time is more than 5 minutes*)

Test whether the response is independent of the gender of the person asked
(*Contingency table*)

Test whether the survival of accident victims is independent of treatment given
(*Contingency table*)

Is there evidence to justify the belief that the mean cholesterol level is greater than 4.0?

Investigate the teacher's claim that her heart rate increases from her normal rate of 76 beats per minute during visits by school inspectors.

Determine whether the incidence of asthma in children is associated with the volume of traffic in the area where they live.
(*Contingency table*)

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Determine whether the condition of the patients at the conclusion of the trial is associated with the treatment they were given.
(Contingency table)

H_0: the condition of the patients at the conclusion of the trial is not associated with the treatment they were given.
H_1: the condition of the patients at the conclusion of the trial is associated with the treatment they were given.

Investigate whether there is a positive association between the input and the yield
(Spearman's)

Investigate whether there is an inverse association between level of supplement and hardness
(PMCC)

Investigate whether there is a positive association between body mass and heart mass
(PMCC)

H_0: there is no association between body mass and heart mass
H_1: there is a positive association between body mass and heart mass

Investigate the claim that the mean waiting time for calls exceeds 90 seconds.

Test the hypothesis that the mean time taken to deal with a query was 40 seconds.

Investigate whether there is a positive association between IQ and Maths scores
(PMCC)

H_0: there is no association between level of supplement and hardness
H_1: there is an inverse association between level of supplement and hardness

Determine whether the value obtained of Spearman's rank correlation coefficient indicates a positive relationship between the marks

H_0: $\mu = 100h$ (*the mean is* 100*h*)
H_1: $\mu < 100h$ (*the mean has decreased from* 100*h*)

H_0: $\mu = 100h$ (*the mean is* 100*h*)
H_1: $\mu > 100h$ (*the mean is more than* 100*h*)

H_0: $\mu = 76$ (*her mean heart rate during visits by school inspectors is* 76 *beats per minute*)
H_0: $\mu > 76$ (*her mean heart rate during visits by school inspectors is more than* 76 *beats per minute*)

H_0: $\mu = 36$ (*no change in number of putts after lessons*)
H_1: $\mu < 36$ (*number of putts will reduce after lessons*)

H_0: $\mu = 4.0$ (*the mean is* 4.0)
H_1: $\mu > 4.0$ (*the mean is greater than* 4.0)

H_0: $\rho_s = 0$; *there is no association between level of supplement and hardness*
H_1: $\rho_s \neq 0$; *there is an association between level of supplement and hardness*

Determine whether the value of the product moment correlation coefficient indicates an association between x and y

H_0: *the incidence of asthma in children is not associated with the volume of traffic in the area where they live.*
H_1: *the incidence of asthma in children is associated with the volume of traffic in the area where they live.*

H_0: *there is no association between the drug given and the level of consciousness* 30 *minutes later*
H_1: *there is an association between the drug given and the level of consciousness* 30 *minutes later*

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Investigate the claim that customers have to queue at a supermarket checkout for more than 5 minutes

H_0: the type of victim is independent of the type of offence
H_1: the type of victim is not independent of the type of offence

H_0: the response is independent of the gender of the person asked
H_1: the response is not independent of the gender of the person asked

H_0: $\rho_s = 0$; there is no relationship between the marks
H_1: $\rho_s > 0$; there is a positive relationship between the marks

Determine whether the value of the product moment correlation coefficient indicates an inverse association between x and y

H_0: $\rho = 0$ (there is no association between x and y)
H_1: $\rho \neq 0$ (there is an association between x and y)

Investigate whether there is an association between the input and the yield (Spearman's)

H_0: $\rho_s = 0$; there is no association between input and yield
H_1: $\rho_s > 0$; there is a positive association between input and yield

Determine whether the value of the product moment correlation coefficient indicates a positive association between x and y

Investigate whether there is an association between level of supplement and hardness (Spearman's)

H_0: $\rho_s = 0$; there is no association between the scores of students in sociology and research methods
H_1: $\rho_s < 0$; there is a negative association between the scores of students in sociology and research methods

Is there evidence that the mean lifetime of batteries has changed from 100 hours?

Determine whether the sample value of Spearman's rank correlation coefficient indicates a positive association between x and y

H_0: $\mu = 24$s (the mean time to complete a transaction is 24 s).
H_1: $\mu \neq 24$s (the mean time to complete a transaction is not 24 s).

H_0: $\rho = 0$ (there is no association between x and y)
H_1: $\rho > 0$ (there is a positive association between x and y)

Is there evidence that the mean lifetime of batteries is more than 100 hours?

Test whether the mean test score exceeded 48

H_0: $\mu = 48$ (the mean is 48)
H_1: $\mu > 48$ (the mean exceeded 48)

H_0: $\mu = 40$s (the mean is 40s)
H_1: $\mu \neq 40$s (the mean is not 40s)

Test whether the data are consistent with the mean time to complete a transaction being less than 24 seconds.

H_0: $\rho_s = 0$; there is no association between input and yield
H_1: $\rho_s \neq 0$; there is an association between input and yield

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