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<b>Completed on</b>	Friday, 2 September 2022, 12:18 PM
<b>Time taken</b>	8 mins 14 secs
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Which step of the problem-solving process is considered the most important?

- ☐ a. Test results.
- ☒ b. Identify problem.
- ☐ c. Analyse model.
- ☐ d. Implement solution.



The correct answer is: Identify problem.

A redundant constraint is a constraint which

- ☐ a. is added after the problem is already formulated.
- ☒ b. plays no role in determining the feasible region of the problem.
- ☐ c. is parallel to the level curve.
- ☐ d. can only increase the objective function value.



The correct answer is: plays no role in determining the feasible region of the problem.

A mathematical model is considered to be "valid" when

- ☐ a. it has passed a validation test.
- ☒ b. it accurately represents the relevant characteristics of the object or decision.
- ☐ c. the left-hand and right-hand sides of expressions are equal.
- ☐ d. it replicates all aspects of the object or decision.



The correct answer is: it accurately represents the relevant characteristics of the object or decision.

Limited resources are modelled in optimization problems as

- ☒ a. constraints.
- ☐ b. an objective function.
- ☐ c. alternatives.
- ☐ d. decision variables.



The correct answer is: constraints.

The best models

- ☒ a. accurately reflect relevant characteristics of the real-world object or decision.
- ☐ b. replicate the characteristics of a component in isolation from the rest of the system.
- ☐ c. are mathematical models.
- ☐ d. replicate all aspects of the real-world object or decision.



The correct answer is: accurately reflect relevant characteristics of the real-world object or decision.

All of the following are benefits of modelling except:

- ☐ a. Modelling is less expensive than implementing several alternative solutions.
- ☐ b. Modelling delivers needed information on a more timely basis.
- ☐ c. Modelling is helpful in examining things that would be impossible to do in reality.
- ☒ d. Modelling finds the right answers to incorrect or flawed problem statements.



The correct answer is: Modelling finds the right answers to incorrect or flawed problem statements.

The symbols  $X_1$ ,  $Z_1$ , in a mathematical formulation of a decision problem are all examples of

- ☐ a. parameters.
- ☐ b. objectives.
- ☐ c. constraints.
- ☒ d. decision variables.



The correct answer is: decision variables.

In the following expression, which is (are) the dependent variable(s)?

PROFIT = REVENUE - EXPENSES

- ☐ a. Revenue
- ☐ b. Profit and Expenses
- ☒ c. Profit
- ☐ d. Expenses



The correct answer is: Profit

The specification or description of the relationship between the dependent and independent variables is generally called

- ☐ a. a declaration.
- ☐ b. a mathematical model.
- ☒ c. a function.
- ☐ d. a constraint.



The correct answer is: a function.

A manager has only 200 tons of plastic for his company. This is an example of a (an)

- ☐ a. decision.
- ☐ b. parameter.
- ☒ c. constraint.
- ☐ d. objective.



The correct answer is: constraint.

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