



# Question 1

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Considere uma situação relativa à aquisição de automóveis.






1. O Rui comprou um Opel de 2007 por 16000 euros.
2. A Ana comprou um BMW de 2006 por 22000 euros.
3. O carro do Nuno é do ano de 2005 ou do ano de 2008.
4. Se o BMW é mais antigo que o Opel então é mais caro.
5. O carro do Nuno é mais antigo que o Opel a menos que seja de 2008.
6. Nem o carro do Rui nem o da Ana são mais caros que o do Nuno.

Defina uma linguagem em lógica de primeira ordem adequada para descrever esta situação, indicando quais os predicados, as funções e as constantes que a constituem.























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



























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**B** *I* U ABC  $x_2$   $x^2$







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**Question 2**

Not yet answered

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Relativamente à situação descrita no enunciado da questão anterior, traduza as seis frases apresentadas para a linguagem que definiu.

Font family


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
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**B** *I* U ABC  $x_2$   $x^2$
















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Next

**Question 3**

Not yet answered

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





Dadas as seguintes frases do Mundo de Tarski, construa um mundo em que todas sejam verdadeiras, usando o software de apoio. Submeta o ficheiro resultante com o nome <login>-P<problema>.wld (ex: ei12142-P3.wld).

























1.  $\text{Tet}(a) \vee \text{Tet}(b) \vee \text{Tet}(c)$
2.  $\text{Tet}(a) \rightarrow (\text{Tet}(b) \wedge \text{Tet}(c))$
3.  $\text{Tet}(b) \rightarrow (\text{Cube}(a) \wedge \text{Tet}(c))$
4.  $\text{Tet}(c) \rightarrow (\text{Cube}(a) \wedge \text{Dodec}(b))$
5.  $\text{Larger}(a, b) \leftrightarrow \text{Larger}(b, c)$
6.  $\text{Larger}(c, b) \leftrightarrow \text{Larger}(b, a)$
7.  $\text{SameSize}(a, c)$
8.  $\text{Small}(a) \rightarrow \text{Medium}(b)$
9.  $\neg \text{Small}(b) \rightarrow \neg \text{Medium}(a)$
10.  $\neg (\neg \text{Adjoins}(d, e) \vee \neg \text{Between}(d, e, a))$
11.  $\neg (\text{BackOf}(a, d) \rightarrow \text{BackOf}(b, c))$
12.  $(\text{Between}(a, b, c) \vee \neg \text{SameRow}(e, b)) \wedge (\text{SameRow}(e, b) \wedge \text{LeftOf}(c, a))$
13.  $((\text{SameShape}(d, e) \wedge \text{SameSize}(d, e)) \rightarrow \neg (\text{SameShape}(c, d) \wedge \text{Medium}(d))) \rightarrow \perp$

O ficheiro de frases está disponível para download no Moodle, na secção do **Teste 1**


<https://moodle.fe.up.pt/1213/course/view.php?id=562>





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**B** *I* U ABC  $x_2$   $x^2$              


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Maximum size for new files: 200MB, maximum attachments: 1 - drag and drop available 

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 Files

Information

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Considere as seguintes 4 frases:


1.  $\text{Tet}(a) \vee \text{Tet}(b) \vee \text{Tet}(c)$
2.  $\text{Tet}(a) \rightarrow (\text{Tet}(b) \wedge \text{Tet}(c))$
3.  $\text{Tet}(b) \rightarrow (\text{Cube}(a) \wedge \text{Tet}(c))$
4.  $\text{Tet}(c) \rightarrow (\text{Cube}(a) \wedge \text{Dodec}(b))$


Relativamente a este conjunto de frases, classifique cada uma das frases seguintes.

Question 4

Not yet answered

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$\text{Tet}(c)$


Select one:


- ☐ a. Consequência tautológica
- ☐ b. Não satisfazível
- ☐ c. Satisfazível mas não consequência lógica
- ☐ d. Consequência lógica mas não tautológica

Question 5

Not yet answered

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$\text{Cube}(b)$

Select one:

- ☐ a. Consequência lógica mas não tautológica
- ☐ b. Não satisfazível
- ☐ c. Satisfazível mas não consequência lógica
- ☐ d. Consequência tautológica

Question 6

Not yet answered

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$\neg \text{Dodec}(a)$

Select one:

- ☐ a. Não satisfazível
- ☐ b. Satisfazível mas não consequência lógica
- ☐ c. Consequência tautológica
- ☐ d. Consequência lógica mas não tautológica

Question 7

Not yet answered

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$\text{Tet}(d)$

Select one:


- ☐ a. Não satisfazível
- ☐ b. Consequência lógica mas não tautológica
- ☐ c. Consequência tautológica
- ☐ d. Satisfazível mas não consequência lógica

Next

**Question 8**

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Considere as seguintes frases:













I)  $(A \rightarrow C) \vee (B \rightarrow C)$















II)  $(A \vee B) \rightarrow C$

III)  $(A \wedge B) \rightarrow C$

Construa usando o programa Boole uma tabela de verdade para estas três frases. Submeta o ficheiro resultante de nome <login>-P<problema>.tt.


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
**B** *I* U ABC  $\times$   $\times^2$             


             


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 Files



You can drag and drop files here to add them.

Question 9

Not yet answered

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Utilizando as frases da questão anterior, indique quais das seguintes afirmações são verdadeiras.

Select one or more:

- ☐ I) é consequência de II)
- ☐ I) é equivalente a III)
- ☐ II) é consequência de III)
- ☐ I) é equivalente a II)
- ☐ III) é consequência de II)

Next








You can preview this quiz, but if this were a real attempt, you would be blocked because:

This quiz is not currently available

question **12**

Not yet answered

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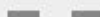
 Edit question

Obtenha uma forma normal disjuntiva da expressão  $((Q \rightarrow P) \vee R) \wedge (P \vee \neg Q \vee \neg R)$ . A expressão final deve ter o mínimo de operadores possível.

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Paragraph



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