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The University of Sydney
**School of Mathematics
 & Statistics**
 MATH1902 Practice for Quiz 1.

Family Name :
Other Names :
Day/time/room :
Signature :

The real quiz (10 questions) lasts 30 minutes and tests material covered in Exercises for Weeks 1, 2, 3 and 4.

These practice questions should take about 10 to 15 minutes and are similar to the first five questions of the real quiz.

Calculators are permitted but not needed.

Use a blue or black pen.

Marks are awarded only for what is written in the answer boxes. Your working is not marked.

<i>Answer Box for Question 1</i>	<i>Answer Box for Question 2</i>
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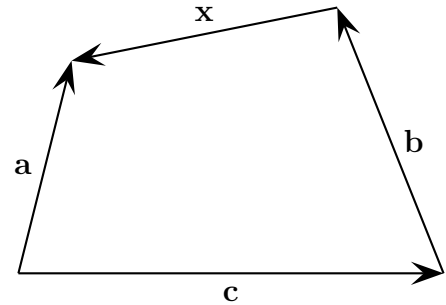
<i>Answer Box for Question 3</i>	<i>Answer Box for Question 4</i>	<i>Answer Box for Question 5</i>
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Questions 6, 7, 8, 9, 10 on the real quiz will be multiple choice.

PRACTICE QUESTIONS FOR QUIZ 1

When you have finished, write your answers into the answer boxes on the front. Take care when transcribing your answers. Note that your working will NOT be marked. Use any blank spaces for rough working.

1. Find the vector x in terms of the vectors a , b , c .



2. Given that $\mathbf{a} = 3\mathbf{i} - 2\mathbf{j} + \mathbf{k}$ and $\mathbf{b} = \mathbf{i} + \mathbf{j} + 4\mathbf{k}$, find $|\mathbf{a} + \mathbf{b}|$.

3. Let A, B, C be the points $(1, 2, -5)$, $(3, -2, -4)$, $(0, 4, 1)$. Find the volume of the parallelepiped that has OA, OB, OC as three of its sides.

4. The magnitude of the position vector \overrightarrow{OA} of a point A is equal to 1, and the directional angles \overrightarrow{OA} makes with the x and y axes are both equal to 60° . Find all possible values of the z -coordinate of A .

5. Given $\mathbf{u} = \mathbf{i} + 4\mathbf{j} - 3\mathbf{k}$ and $\mathbf{v} = 2\mathbf{j} - \mathbf{k}$, find a vector of length 2 that is perpendicular to both \mathbf{u} and \mathbf{v} .