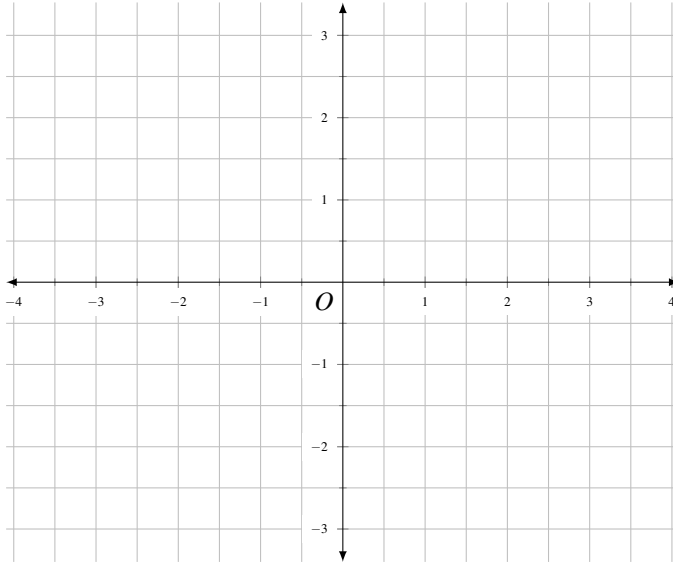


## Quiz 15

This quiz is graded out of 20 marks. No books, watches, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

**Question 1.** Given  $P_1(2, 3)$  and  $P_2(-2, 1)$ .

- a. (2 marks) Sketch the vector having initial point  $P_1$  and terminal point  $P_2$ .



- b. (2 marks) Find the vector  $\vec{u}$  in standard position that is equal to vector  $\vec{P_1P_2}$ .

- c. (2 marks) Find the length of the vector  $\vec{P_1P_2}$ .

**Question 2.** (4 marks) Find the angle between the vectors  $\vec{u} = (1, \sqrt{3})$  and  $\vec{v} = (-2, 0)$ .

**Question 3.** (5 marks) Find the exact value of  $\cos(\arcsin(-\frac{3x}{5}))$ .

**Question 4.** (5 marks) Solve for  $x$ :  $3 \cos^{-1}(x+2) - \pi = \pi$ .

**Question 5.** (6 marks) Solve for  $x$ , giving exact solutions where possible,  $0 \leq x < 2\pi$ :  $\sin x - \sqrt{2} \sin^2 x = 0$ .