

# 1.3 Vectors & Scalars

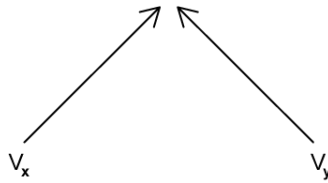
## Question Paper

Course	DPIB Physics
Section	1. Measurement & Uncertainties
Topic	1.3 Vectors & Scalars
Difficulty	Easy

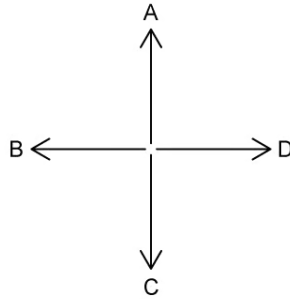
**Time allowed:** 20  
**Score:** /10  
**Percentage:** /100

### Question 1

The velocity vectors  $\mathbf{v}_X$  and  $\mathbf{v}_Y$  of two cars, X and Y, are shown.



Which arrow represents the direction of the vector  $\mathbf{v}_X - \mathbf{v}_Y$ ?



[1 mark]

### Question 2

Which of the following statements about scalar quantities is incorrect?

- A. Scalar quantities contain a magnitude only
- B. Mass is a scalar quantity
- C. Scalar quantities contain both magnitude and direction
- D. Speed is a scalar quantity

[1 mark]

### Question 3

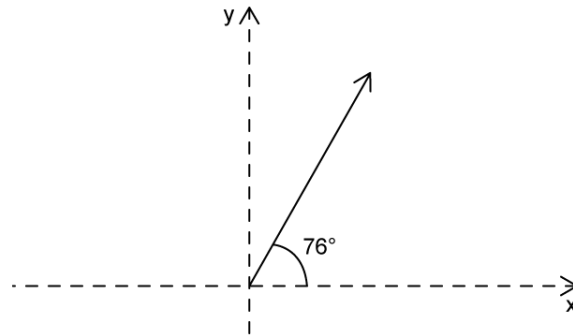
Which of the following quantities is not a vector?

- A. Acceleration
- B. Weight
- C. Mass
- D. Drag

[1 mark]

### Question 4

A vector of magnitude 10 units is shown with respect to a set x and y axes.



What is the correct expression for the components of the vector along the x and y axis?

	Component along the x axis	Component along the y axis
A.	$10 \cos 76$	$10 \sin 76$
B.	$10 \cos 76$	$10 \sin 14$
C.	$10 \sin 76$	$10 \cos 76$
D.	$10 \sin 76$	$10 \cos 14$

[1 mark]

### Question 5

A vector P has components  $P_x = 3.0$  cm and  $P_y = 4.0$  cm.

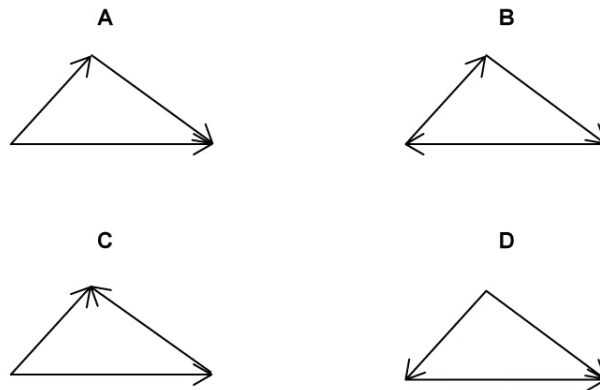
What is the length of the vector P?

- A. 1.0 cm
- B. 5.0 cm
- C. 7.0 cm
- D. 25.0 cm

[1 mark]

### Question 6

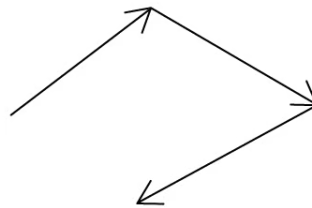
Three forces act on a body in equilibrium. Which diagram is a possible vector diagram for this situation?



[1 mark]

### Question 7

Three forces act on a body as shown:



Which of the following statements is correct?

- A. The body is in equilibrium
- B. The force required to bring the body into equilibrium is directed in a north west direction
- C. The force required to bring the body into equilibrium is directed in a south east direction
- D. There is no resultant force on the body

[1 mark]

**Question 8**

Which of the following units is used to measure vectors only?

- A. m
- B.  $\text{m s}^{-1}$
- C. s
- D. N

[1 mark]

**Question 9**

Which of the following units is used to measure scalar quantities only?

- A. s
- B. m
- C.  $\text{m s}^{-1}$
- D.  $\text{m s}^{-2}$

[1 mark]

**Question 10**

Which of the following statements about vector quantities is incorrect?

- A. Vector quantities include a magnitude
- B. Vector quantities contain a direction
- C. Vector quantities are only positive
- D. Vector quantities are positive or negative

[1 mark]