1.3 Vectors & Scalars

Question Paper

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

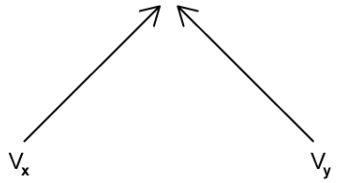
Time allowed: 20

Score: /10

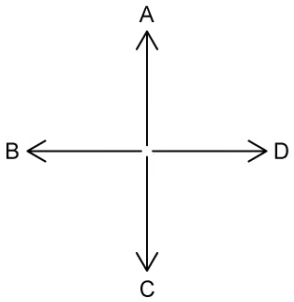
Percentage: /100

Question 1

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



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



[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

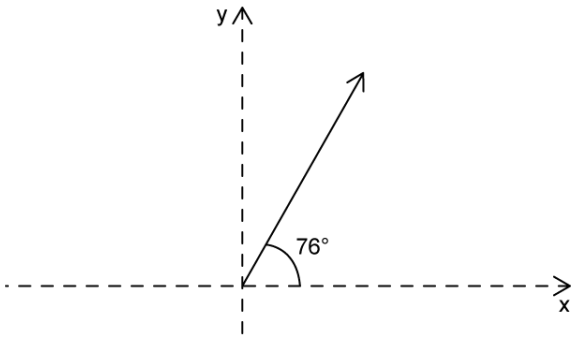
C. Mass

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

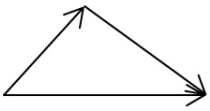
D. 25.0 cm

[1 mark]

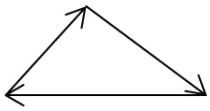
Question 6

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

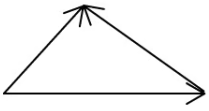
A



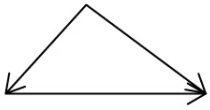
B



C



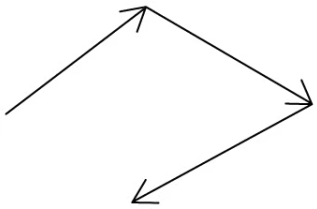
D



[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. $m\,s^{-1}$

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. $m\,s^{-1}$

D. $m\,s^{-2}$

[1 mark]

Question 10

Which of the following statements about vector quantities is incorrect?

A. Vectors 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]