

**Question 1**

1 pts

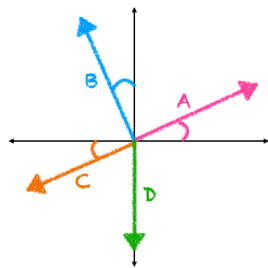
You go for a walk in a park. Starting from your car, you first walk 15.2 m at an angle of 24.6° north of east. Then, you turn and walk 13.2 m at an angle of 59.6° north of west. Finally, you walk directly east for 8.7 m until you reach a pavillion. What is your displacement from your car to the pavillion, in meters?

**Question 2**

1 pts

You go for a walk in a park. Starting from your car, you first walk 15.9 m at an angle of 21.7° north of east. Then, you turn and walk 11.6 m at an angle of 57.6° north of west. Finally, you walk directly east for 5.2 m until you reach a pavillion. What is the direction of your displacement, measured in degrees counterclockwise from your car to the pavillion?

Add the following 4 vectors. [Note: not shown to scale.]



A = 6.3 N at an angle of 18.1° with respect to the +x-axis. (Shown in figure.)

B = 7.7 N at an angle of 21° with respect to the +y-axis. (Shown in figure.)

C = 7.4 N at an angle of 29.6° with respect to the -x-axis. (Shown in figure.)

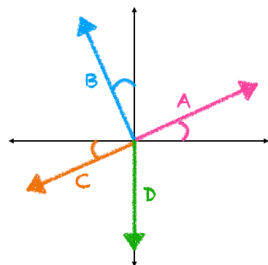
D = 7.4 N which lies along the -y-axis. (Shown in figure.)

What is the magnitude of the resultant in Newtons?

**Question 4**

1 pts

Add the following 4 vectors. [Note: not shown to scale.]



A = 7.8 N at an angle of 42.3° with respect to the +x-axis. (Shown in figure.)

B = 7.4 N at an angle of 28.5° with respect to the +y-axis. (Shown in figure.)

C = 15.6 N at an angle of 15.9° with respect to the -x-axis. (Shown in figure.)

D = 10.7 N which lies along the -y-axis. (Shown in figure.)

What is the angle of the resultant vector relative to the +x-axis and measuring counter clockwise?

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Question 1**1 pts**

Three charged objects are arranged in a horizontal line:

Charge Q_1 : $12.8 \mu\text{C}$

Charge Q_2 : $-30.2 \mu\text{C}$

Charge Q_3 : $24.1 \mu\text{C}$

The distance between Q_1 and Q_2 is 0.527 m , and the distance between Q_2 and Q_3 is 0.685 m . Remember: $1 \mu\text{C} = 1 \times 10^{-6} \text{ C}$.

What is the net force on charge Q_2 (in Newtons)? Include the sign on your answer, where $+x$ is to the right and $-x$ is to the left.

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Question 2**1 pts**

Three charged objects are placed on an xy coordinate axis:

Charge Q_1 : $11.1 \mu\text{C}$ at the origin

Charge Q_2 : $-33.7 \mu\text{C}$ at $(0, 0.337) \text{ m}$

Charge Q_3 : $24.5 \mu\text{C}$ at $(0.555, 0) \text{ m}$

What is the magnitude of the net force (in Newtons) acting on Q_1 ? Remember: $1 \mu\text{C} = 1 \times 10^{-6} \text{ C}$.

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Question 3**1 pts**

Three charged objects are placed on an xy coordinate axis:

Charge Q_1 : $19.3 \mu\text{C}$ at the origin

Charge Q_2 : $-15.8 \mu\text{C}$ at $(0, 0.468) \text{ m}$

Charge Q_3 : $29.6 \mu\text{C}$ at $(0.799, 0) \text{ m}$

What is the direction of the net force (in degrees measured counterclockwise from the $+x$ axis) acting on Q_1 ? Remember: $1 \mu\text{C} = 1 \times 10^{-6} \text{ C}$.