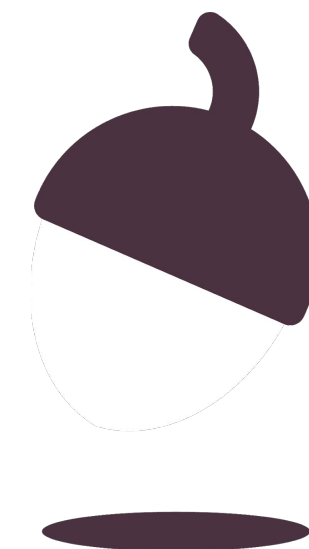


Combined Science - Physics - Key Stage 4 - Forces

Resolving Forces (HT only)



OAK
NATIONAL
ACADEMY

Recap Task - Scalars and Vectors

Draw a 2 column table, with appropriate headings, and sort these into scalar and vector quantities.
Add their units if you can.

temperature mass velocity

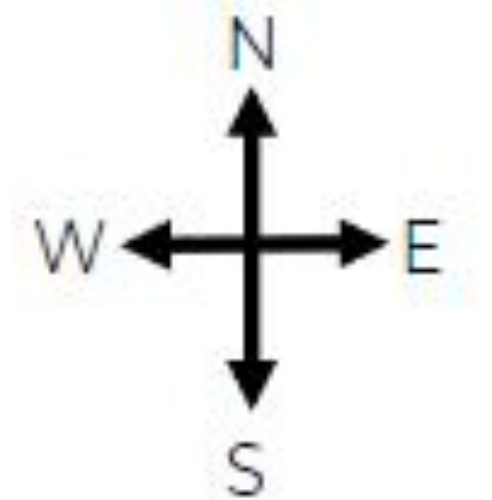
speed length displacement

forces potential difference acceleration



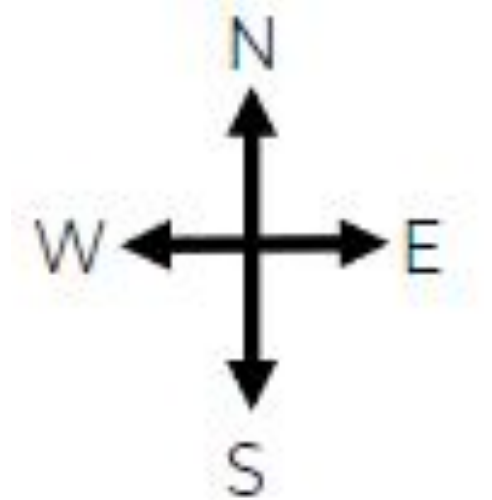
Task - Vector Addition

1. A person walks 30 m east, then another 100 m east.
2. A car travels 250 m west, and then another 200 m west.
3. A woman jogs 1000 m north, and after a rest jogs a further 5000 m in the same direction.
4. A bus travels 10000 m south, stops, and then travels 30000 m further south.



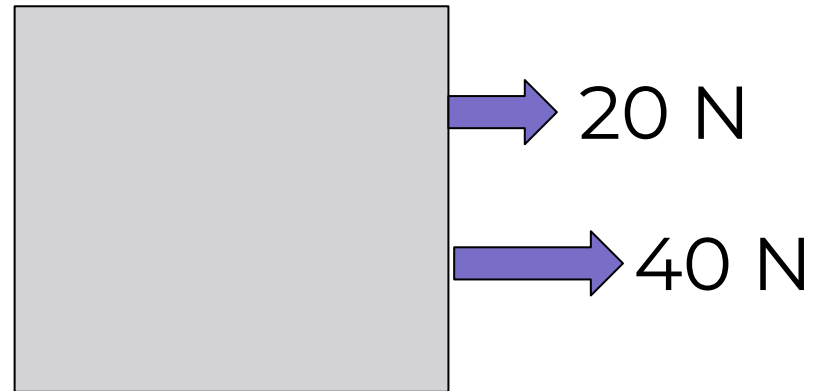
Task - Vector Subtraction

1. A person walks 100 m east, then 30 m west.
2. A car travels 200 m west, and then another 400 m east.
3. A woman jogs 1000 m north, and after a rest jogs a further 400 m in the opposite direction.
4. A bus travels 10000 m south, stops, and then travels 30000 m north.

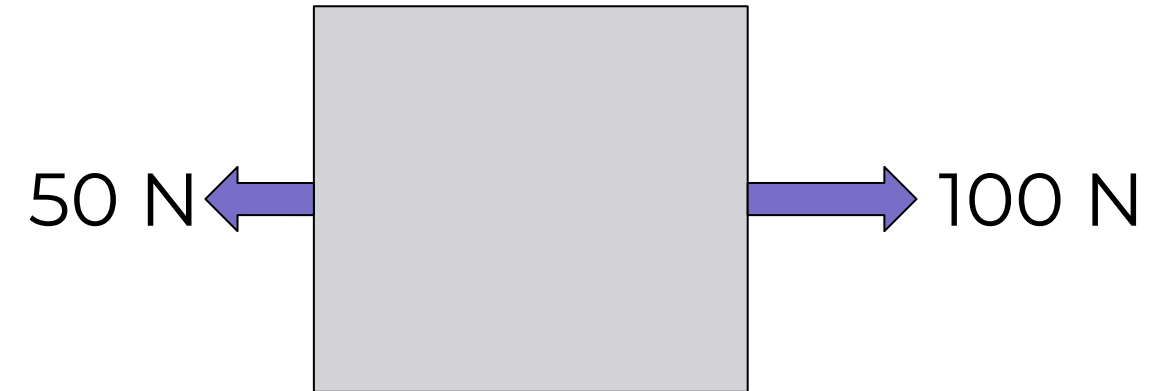


Independent Task- Resultant Forces

a



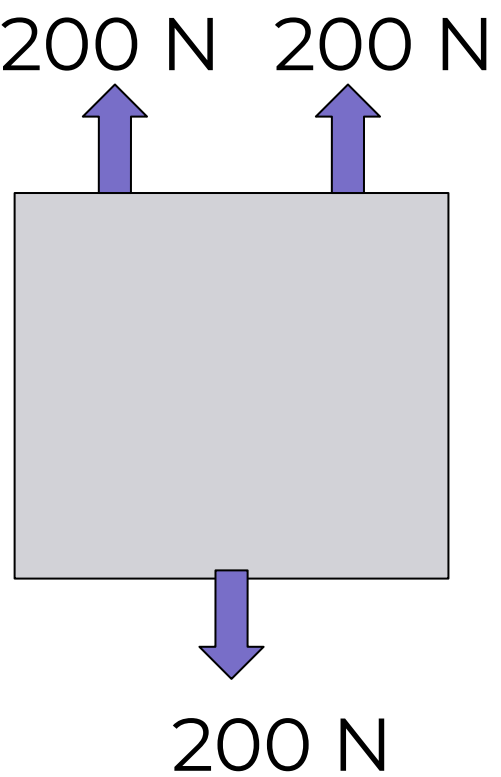
b



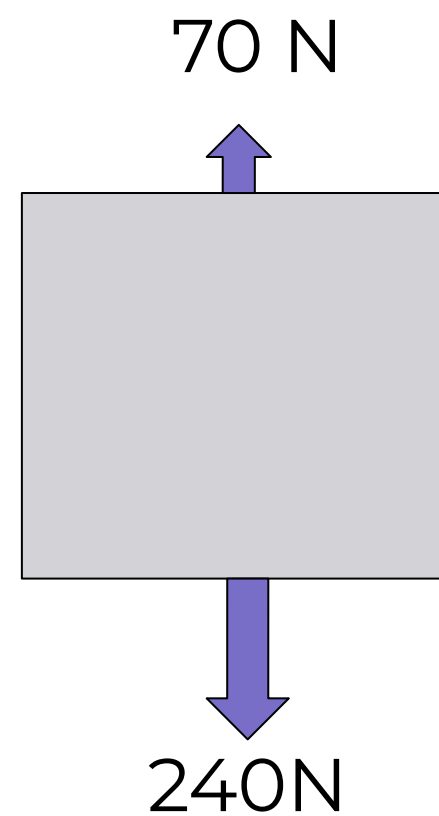
c



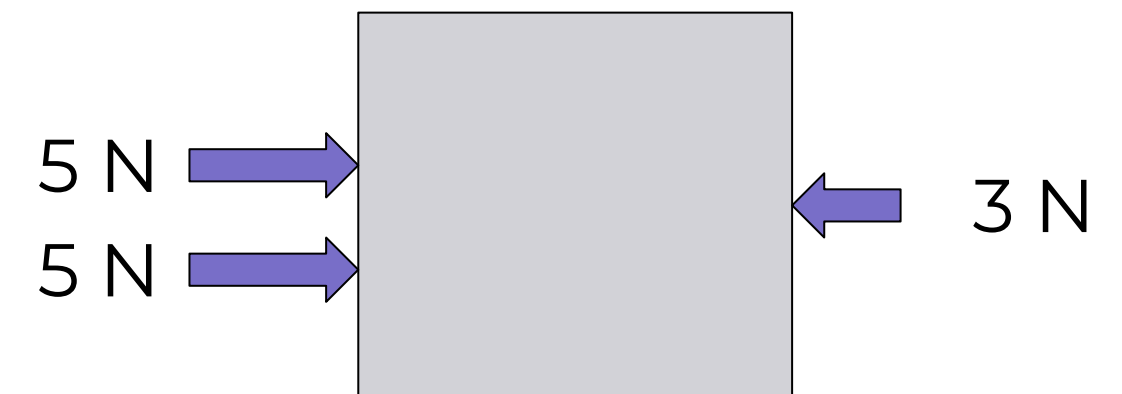
d



e



f



Independent Practice:

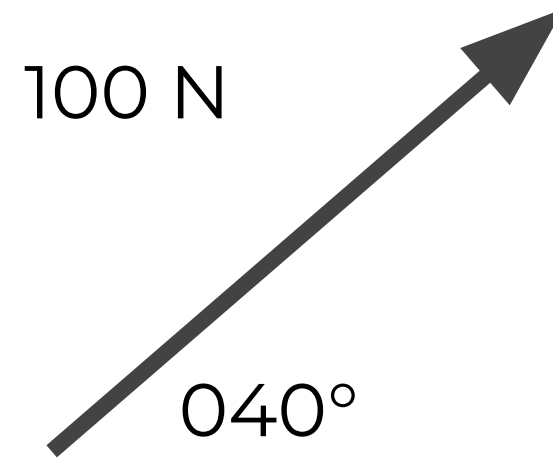
1. Two forces are acting on an object – one is 17 N up and one is 5 N to the right. Draw a scaled diagram to calculate the resultant force. Give the direction.
2. A toy airplane flies north with a push from the engine of 100 N, against a wind pushing it East with a force of 20 N. Calculate the resultant force and the bearing of the plane.
3. A car drives 25 miles South and then 10 miles West. Use a scaled diagram to calculate his resultant displacement and the bearing.



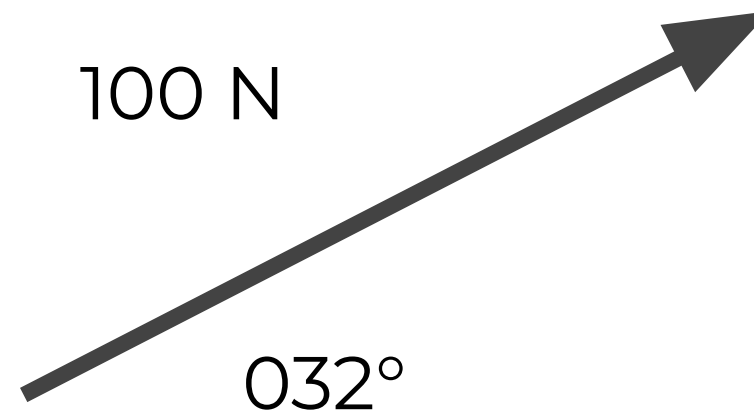
Independent Practice

Determine the components vectors of the following forces.,

a)



b)



c)

