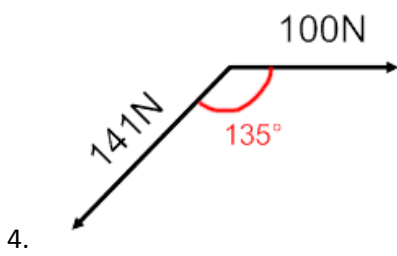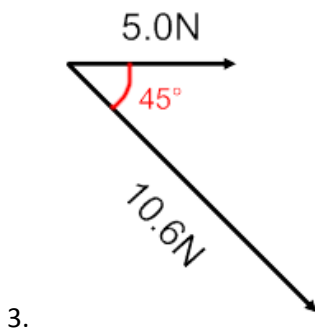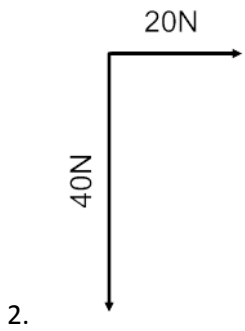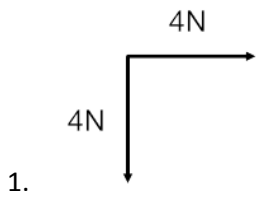# Adding Forces using the Parallelogram Method

Name ………………………….

Find the resultant force in each of these situations. Use a separate piece of graph paper for your scale drawings.

4N

4N

1.

20N

40N

2.

5.0N

45°

10.6N

3.

100N

141N

135°

4.

2N   4N

4N

5.
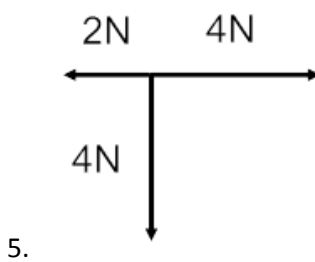
More on the Parallelogram Method

The parallelogram method can be used to add anything that can be represented with an arrow. For example, displacement (distance in a given direction) can be represented with an arrow, so we can use the parallelogram method to add displacements.

Use exactly the same method as for forces – draw both the arrows to scale starting from the same point, and continue as you did with forces.

Try the problems below – some need the parallelogram method, others don't. Again, use graph paper when needed.

1. I walk 5km North then 3km South. What is my final displacement from my starting point?

2. I walk 5km North then 3km South then 8km North. What is my final displacement from my starting point?

3. I walk 5km North then 3km East. What is my final displacement from my starting point?

4. I walk 5km N then 3km SE. What is my final displacement from my starting point?

5. I walk 5km North then 3km on a bearing of 030. What is my final displacement from my starting point?

Scalars and Vectors

Quantities that have a direction associated with them (like force and displacement) are called vectors.

Quantities that don't have a direction (like temperature and mass) are called scalars.

Can you think of any other quantities that:

1. Have a direction:

2. Don't have a direction: