1 a Draw the resultant force from the force arrows below.
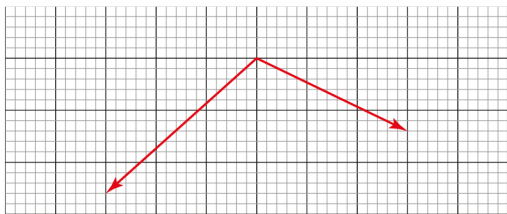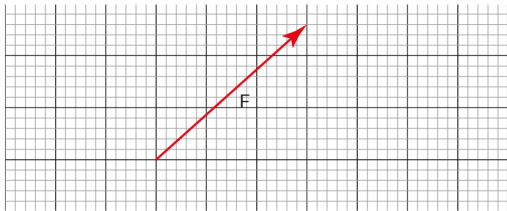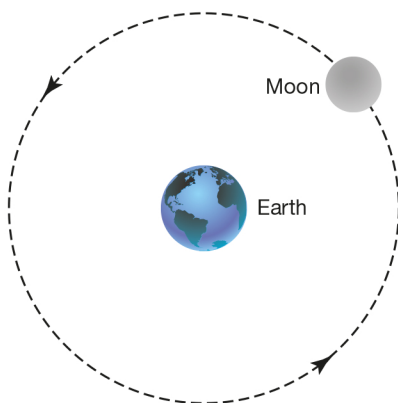

b Resolve the force in its vertical and horizontal components, and label each component F_y and F_x, respectively.

2 Copy the diagram below and draw all the gravitational forces applied in this system, and explain why you drew those forces and with that size.

3 Draw and label the resultant force in this situation, making sure you draw the resultant force to the correct scale and label it with the correct value of force in newtons.

4 Two horses pull the Queen's carriage with a force of 523 N each. If the total work done by their forces is 378 652 J, calculate the distance they have travelled.

5 Usain Bolt takes 3.78 s to run the first 30 m from stationary, but he takes 3.95 s from the moment the starting gun is fired. Calculate the two average speeds to run 30 m from these two times, and suggest why there is a difference.

6 If the combined mass of this cyclist and bicycle is 81.5 kg, calculate the acceleration of the cyclist.