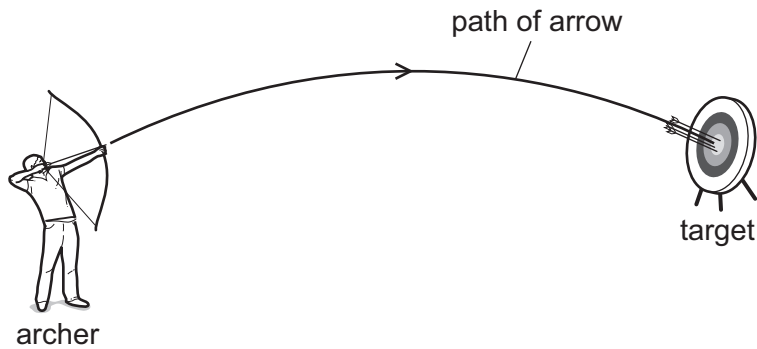
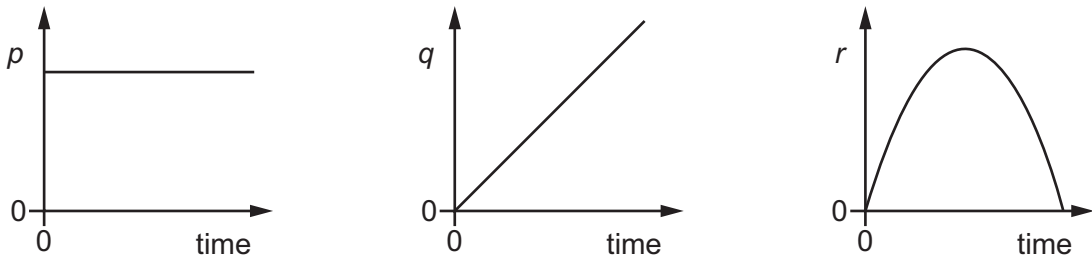


7 An archer shoots an arrow at a target. The diagram shows the path of the arrow.



Air resistance is assumed to be negligible.

The graphs show how three different quantities  $p$ ,  $q$  and  $r$ , relating to the motion of the arrow, vary with time.



Which quantity is the horizontal component of displacement and which quantity is the vertical component of displacement of the arrow?

	horizontal component of displacement	vertical component of displacement
<b>A</b>	$p$	$q$
<b>B</b>	$q$	$r$
<b>C</b>	$r$	$p$
<b>D</b>	$r$	$q$

8 The three forces acting on a hot-air balloon that is moving vertically are its weight, the force due to air resistance and the upthrust force.

The hot-air balloon descends vertically at constant speed. The force of air resistance on the balloon is  $F$ .

Which weight of material must be released from the balloon so that it ascends vertically at the same constant speed?

- A  $F$
- B  $2F$
- C  $3F$
- D  $4F$