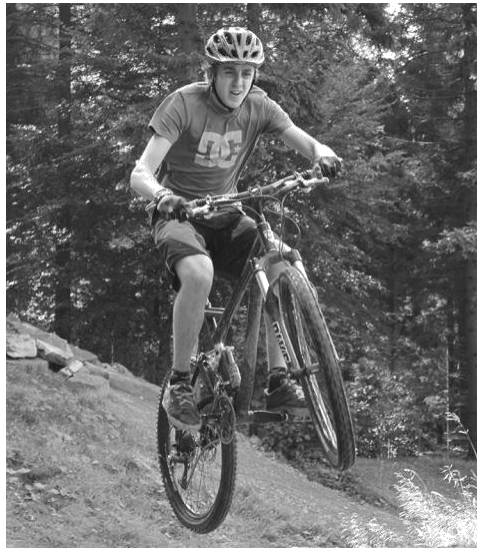
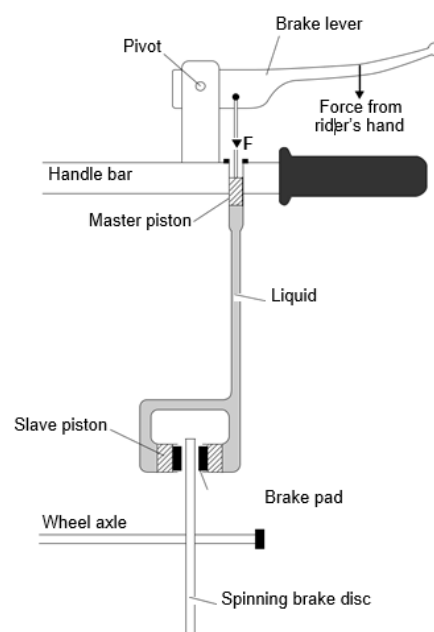


FLUID PRESSURE

Q:1 Mountain bike riders use brakes to slow down.



Some mountain bikes use liquid-filled pipes to transmit the force from the rider's hand on the brake lever to the brake pads. These brakes are called hydraulic brakes.



(a) Draw a ring around the correct answer to complete each sentence.

(i) Liquids can be used to transmit the forces in a brake system, because liquids

are incompressible.
can flow.
take the shape of the container.

(1 mark)

(ii) The pressure in the liquid is transmitted

against force F only.
downwards only.
in all directions.

(1 mark)

(b) When the rider's hand pulls on the brake lever, the force F applied to the liquid by the master piston is 80 N. The cross-sectional area of this piston is 50 mm².

Calculate the pressure, in N/mm², exerted on the liquid by the master piston.

Use the correct equation from the Physics Equations Sheet.

Pressure = _____ N/mm²

(2 marks)

(c) The unit N/mm² is not the usual unit of pressure.

Which unit is usually used when calculating pressure?

Draw a ring around the correct answer.

N Nm² Pa

(1 mark)

(d) The rider applies a larger force to the brake lever. How would this increase in force affect the pressure in the liquid?

(1 mark)

Total 6 marks