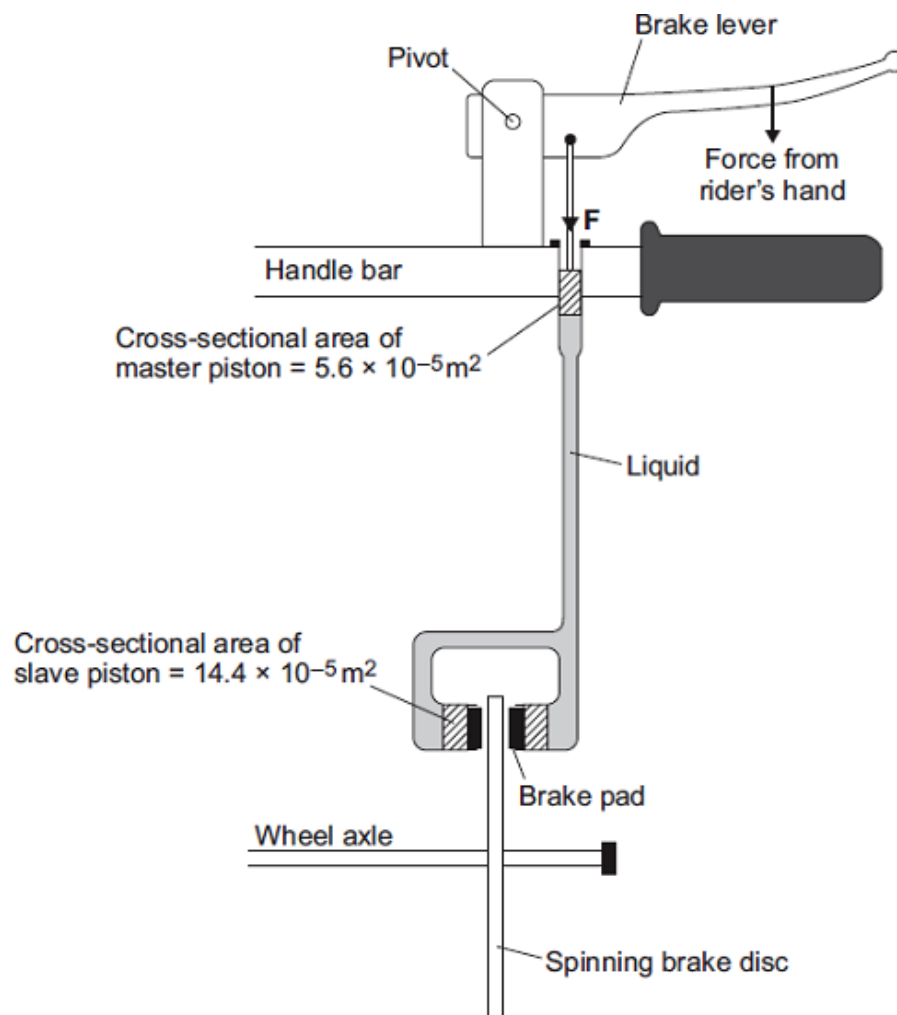


**Q1.** Mountain bike riders use brakes to slow down.



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Some mountain bikes have hydraulic brakes.



(a) What property of a liquid enables a hydraulic brake system to work?

.....

(1)

- (b) When the rider's hand pulls on the brake lever, the master piston applies a pressure of  $1.5 \times 10^6$  pascals to the liquid.

Using information from the diagram, calculate the force **F** exerted on the liquid by the master piston.

Use the correct equation from the Physics Equations Sheet.

.....  
.....  
.....  
.....

Force **F** = ..... N

(2)

- (c) The pressure in the liquid applies a force to move each slave piston.

How does the size of this force compare to the force **F** applied by the master piston?

.....  
.....

Give a reason for your answer.

.....  
.....

(2)

(Total 5 marks)

