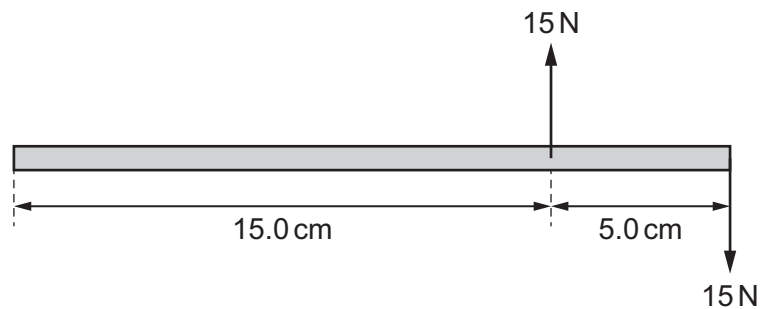


13 What is the torque of the couple shown?



- A** 0.75 N m      **B** 1.50 N m      **C** 3.00 N m      **D** 5.25 N m

14 Water has a density of  $1.0 \text{ g cm}^{-3}$ .

Glycerine has a density of  $1.3 \text{ g cm}^{-3}$ .

A student measures out a volume of  $40 \text{ cm}^3$  of glycerine into a container.

The student adds water to the container to make a mixture of water and glycerine. Assume that the total volume of water and glycerine does not change when the two liquids are mixed.

Which volume of water needs to be added to make a mixture of density  $1.1 \text{ g cm}^{-3}$ ?

- A**  $4.0 \text{ cm}^3$       **B**  $8.0 \text{ cm}^3$       **C**  $34 \text{ cm}^3$       **D**  $80 \text{ cm}^3$

15 Which statement about the principle of conservation of energy is correct?

- A** Energy conversion helps to conserve energy sources.  
**B** Energy is conserved only in systems with an efficiency of 100%.  
**C** The supply of energy is limited so energy should be conserved.  
**D** The total amount of energy in a closed system is constant.

16 A student can run or walk up the stairs to her classroom.

Which statement describes the power required and the gravitational potential energy gained while running up the stairs compared to walking up them?

- A** Running provides more gravitational potential energy and uses more power.  
**B** Running provides more gravitational potential energy and uses the same power.  
**C** Running provides the same gravitational potential energy and uses more power.  
**D** Running provides the same gravitational potential energy and uses the same power.