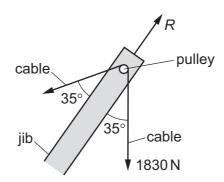
13 The diagram shows the jib of a crane at an angle of 35° to the vertical. A cable passes over a frictionless pulley and carries a load of 1830 N.



The force *R* that the pulley exerts on the cable is in line with the jib. The cable and the pulley are in equilibrium.

What is the value of *R*?

- **A** 1000 N
- **B** 1500 N
- **C** 2100 N
- **D** 3000 N

- 14 What is a unit for density?
 - $\mathbf{A} \quad \text{N m}^{-3}$
- $\mathbf{B} \quad \mathbf{g} \, \mathbf{m} \mathbf{m}^{-1}$
- C kg cm⁻²
- **D** μ g mm⁻³
- 15 Which statement about energy is **not** correct?
 - A Energy is never lost but it may be transferred between different forms.
 - **B** In an inelastic collision, the total energy is constant.
 - C The efficiency of a system is the ratio of the useful energy output to the total energy input.
 - **D** When a machine does work, friction reduces the total energy.
- **16** An electric kettle is rated as having an input power of 1.50 kW and an efficiency of 65.0%.

The kettle is switched on for 2.00 minutes.

How much energy is transferred to the water in the kettle?

- **A** 0.975 kJ
- **B** 117kJ
- **C** 180 kJ
- **D** 277 kJ