

## YEAR 09

### Physics Homework

#### Revision of Pressure

1. Anne has bought a statue for her garden, but the ground where she wants to put it is soft. She estimates that if the pressure of the statue on the ground goes over 4000 Pa it will sink.
  - a) The statue weighs 450 N and has an area of contact with the ground of  $0.06 \text{ m}^2$ . Anne thinks it will sink. Is she correct? (2)
  - b) She decides to make a base for the statue out of concrete.  
Explain how adding a base can reduce the pressure of the statue on the ground. (3)
  - c) The base has an area of  $0.16 \text{ m}^2$ . What is the maximum weight Anne can make the base? (4)
2. Alan is building a house. The house exerts a force of 240,000 N on the foundations. The foundations spread this load over an area of  $8 \text{ m}^2$ .
  - a) What is the pressure on the foundations? (2)
  - b) Building laws say that the pressure on the foundations should be not more than 32,000 Pa. How much smaller could Alan have made the area of the foundations without breaking the building laws? (4)