

## M11 Concept Question 1

Given the torque-twist and torque-stress relationships (and the assumptions that we made to obtain them). Which of the following cross-sections would you expect to be best suited to creating the stiffest, strongest shaft for a given mass of material utilized?

1. A solid circular cross-section
2. A solid square cross-section
3. A hollow circular cross-section
4. A cruciform cross-section
5. A hollow square cross-section
6. Some other answer
7. I don't know/don't understand.

## M11 Concept Question 2

For the end-loaded, spring-supported rod shown on the board, which of the following statements are true?

A: At a certain value of  $P_2$  the effective stiffness (i.e.  $P_1 = k_{\text{eff}} \Delta$ ) will become zero

B: The forces and reactions acting on the rod will always remain in equilibrium, whatever the values of  $P_1$ ,  $P_2$  and  $k$

C: For a fixed value of  $P_2$ , at a certain value of  $P_1$  the rod will collapse

1. A only
2. B only
3. C only
4. A and B
5. B and C
6. A and C
7. A, B and C
8. None of them
9. I do not know/I do not understand.