

## Statics

### Reinforcement Quiz 011

Select the best response and indicate the response on the corresponding answer sheet.

1. Determine the magnitude of the resultant of the following three forces:

$$F_1 = 100i - 200k \text{ acting at } (0, 0, 0)$$

$$F_2 = 50j + 50k \text{ acting at } (3, 1, 2)$$

$$F_3 = -200i + 100j \text{ acting at } (0, 2, 0)$$

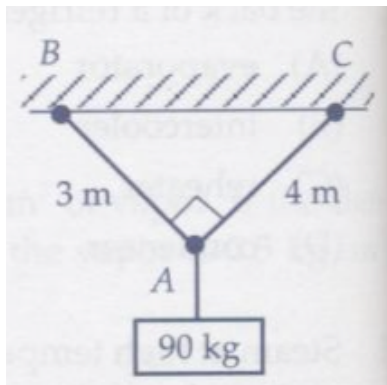
(A) 457

(B) 365

(C) 283

(D) 234

2. Find the tension in the cable AB



(A) 706 N

(B) 530 N

(C) 264 N

(D) 72 N

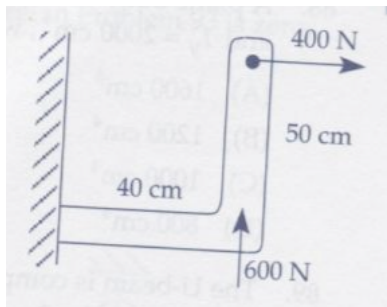
3. The z-component of the force  $F = 20i - 30j + 40k$  acting at  $(1, 2, 3)$  about the point  $(0, 2, 0)$  is

- (A) 89
- (B) 80
- (C) 60
- (D) 30

4. If two forces hold a rigid body in equilibrium, they must

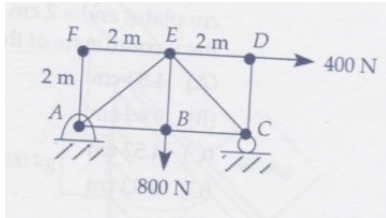
- (A) form a couple.
- (B) be non-concurrent.
- (C) be collinear.
- (D) act at right angles.

5. A force and moment are needed at the wall to hold the rigid link in equilibrium. What is the moment?



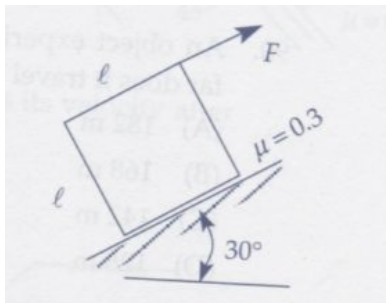
- (A)  $20N \bullet m$
- (B)  $40N \bullet m$
- (C)  $140N \bullet m$
- (D)  $240N \bullet m$

6. Find the force in member  $AB$ .



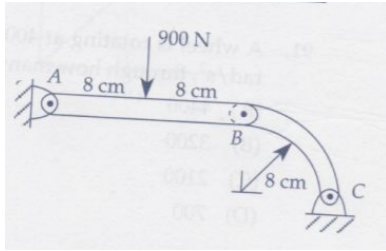
- (A) 0
- (B) 200 N
- (C) 400 N
- (D) 600 N

7. What force will cause the 20kg block to move?



- (A) 103 N
- (B) 121 N
- (C) 134 N
- (D) 149 N.

8. Find the magnitude of the force at support C.

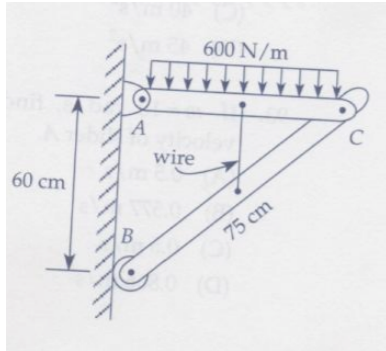


- (A) 537 N
- (B) 424 N.
- (C) 387 N.
- (D) 300 N.

9. A 4-m-long chain lies in a straight line on a table. How much of the chain can hang over the edge of the table without the entire chain slipping off, if  $\mu = 0.4$ ?

- (A) 1.02m
- (B) 1.14m
- (C) 1.92m
- (D) 2.67m

10. A wire connects the middle of the two links. What is the tension in the wire?



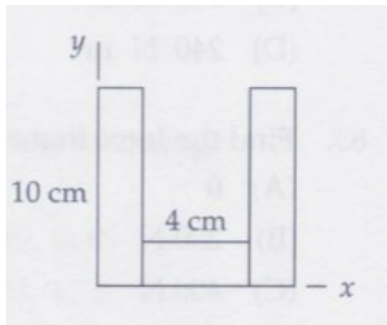
- (A) 540 N
- (B) 405 N
- (C) 270 N
- (D) 195 N

11. A plane body has its centroid C at (2 cm, 4 cm). If its area is  $100\text{cm}^2$  and  $I_y = 2000\text{cm}^4$ , what is  $(I_y)_C$ ?

- (A)  $1600\text{cm}^4$
- (B)  $1200\text{cm}^4$
- (C)  $1000\text{cm}^4$
- (D)  $800\text{cm}^4$

12. The U-beam is composed of two 2cm by 10 cm plates and a 2cm by 4 cm plate. What is the y-coordinate of the centroid?

- (A) 4.38 cm
- (B) 4.69 cm
- (C) 4.52 cm
- (D) 4.33 cm



**STOP!** This is the end of **Statics**

**Reinforcement Quiz 011** If you complete this quiz in less than 12 minutes, you may return to any of the problems.