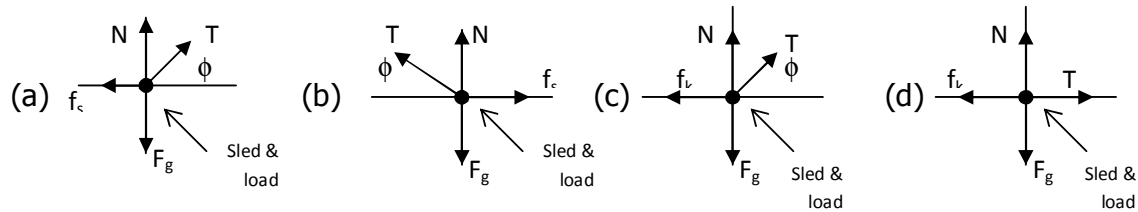
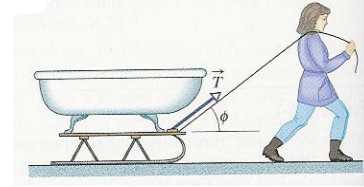


## Chapter 6: FORCE AND MOTION II

1. In the figure a woman **pulls** a loaded sled of mass **m** along a horizontal surface at **constant velocity**. The coefficient of kinetic friction between the runners and the snow is  $\mu_k$ . Which figure shows the correct **free body diagram** for the sled and load?



2. In question 2, The **equation of the forces acting on the load and sled** (from Newton's second law) is:

- (a)  $\vec{T} + \vec{N} + \vec{F}_g + \vec{f}_k = 0$   
 (b)  $\vec{T} + \vec{N} + \vec{F}_g + \vec{f}_s = 0$   
 (c)  $\vec{T} + \vec{N} + \vec{F}_g + \vec{f}_k = m\vec{a}$   
 (d)  $\vec{T} + \vec{N} + \vec{F}_g + \vec{f}_s = m\vec{a}$

3. A **12 N** horizontal force pushes a block of **weight 5 N** to make it move with **constant speed**, the value of the **coefficient of friction**  $\mu_k$  is:

- (a) 2.4                      (b) 0.24                      (c) 4.1                      (d) 0.41

4. A car has a **weight of 1.1 N** slides on the road with acceleration  $\mathbf{a} = 1.24 \text{ m/s}^2$ , **what is the force of friction** between the car and the road?

- (a) - 1.13 N                      (b) - 11 N                      (c) - 1.4 N                      (d) - 0.14 N

5. A **12 N** horizontal force pushes a block of **weight 5 N** to make it move with **constant speed**, the value of the **coefficient of friction**  $\mu_k$  is:

- (a) 2.4                      (b) 0.24                      (c) 4.1                      (d) 0.41



6. A block lies on a floor. If the maximum value  $f_{x,\max}$  of the static frictional force on the block is **10 N**, what is the magnitude of the **frictional force** if the magnitude of the horizontally applied force is **8 N**?

- (a) 10 N                      (b) 8 N                      (c) 2 N                      (d) 18 N

7. A **470 N** horizontal force pushes a block of **mass 79 kg** to make it move with **constant speed**, what is the value of the **coefficient of friction  $\mu_k$**  ?

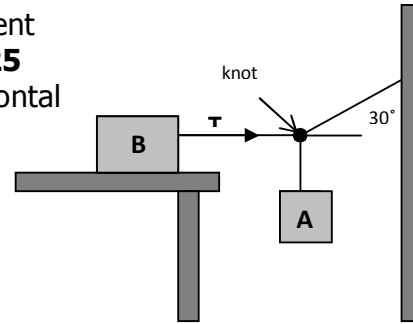
- (a) 0.61                      (b) 6                      (c) 1.6                      (d) 0.06

8. A block lies on a floor. If the maximum value  $f_{x,\max}$  of the static frictional force on the block is **10 N**, what is the magnitude of the frictional force if the magnitude of the horizontally applied force is **12 N**?

- (a) 10 N                      (b) 12 N                      (c) 2 N                      (d) 22 N

9. In the figure, **block B weighs 711 N**. The coefficient of static friction between the block and the table is **0.25** assume that the cord between **B** and the **knot** is horizontal

**What is the magnitude of the tension T?**



- (a) 205.2 N                      (b) 355.5 N                      (c) 820.1 N                      (d) 1422 N

10. In question 9, the weight of block **A** is :

- (a)  $T \cos 30$                       (b)  $T \sin 30$                       (c)  $F_g - T \cos 30$                       (d)  $F_g - T \sin 30$