Conceptual Question C3.1

Given: A block having a weight of W is supported by cables CA and CB. Let T_{CA} and T_{CB} represent the tensions in cables CA and CB, respectively.
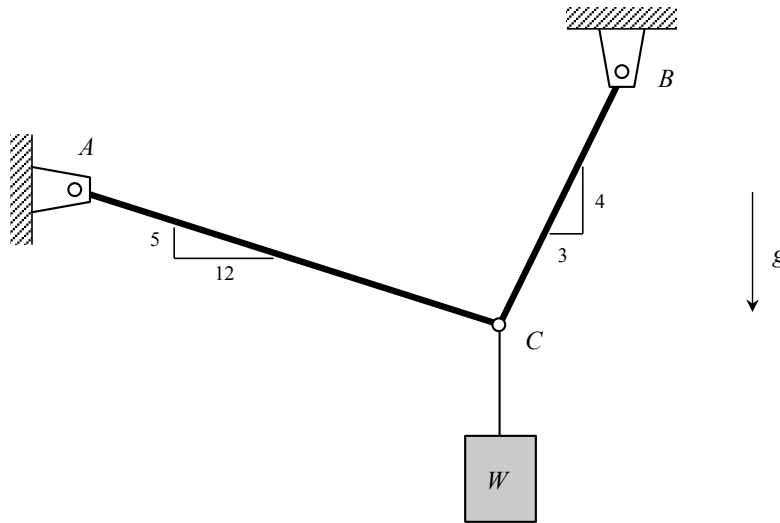
Find:

Circle the correct response below regarding the relative sizes of T_{CA} and T_{CB}:
- $T_{CA} > T_{CB}$
- $T_{CA} = T_{CB}$
- $T_{CA} < T_{CB}$

Circle the correct response below regarding the relative sizes of T_{CA} and W:
- $T_{CA} > W$
- $T_{CA} = W$
- $T_{CA} < W$

Provide explanations for your answers.
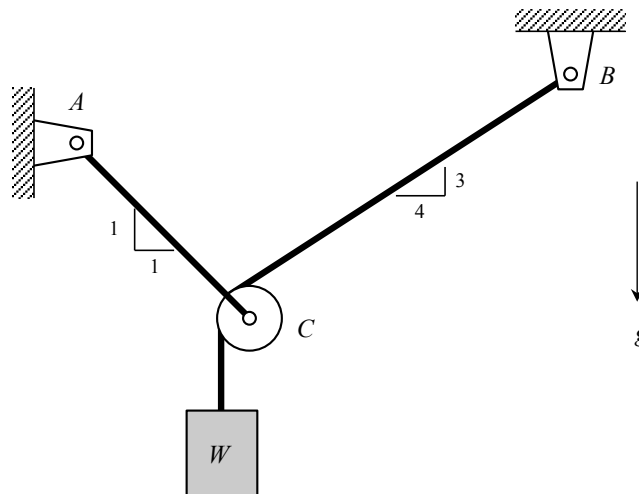
Conceptual Question C3.2

Given: A block having a weight of W is supported by cable CB and by a cable AC with an ideal pulley.

Find:

Circle the correct response below regarding the relative sizes of T_{CA} and W:
- $0 < T_{CA} \le 0.5W$
- $0.5W < T_{CA} < W$
- $T_{CA} = W$
- $W < T_{CA} \le 1.5W$
- $1.5W < T_{CA} < 2W$
- $T_{CA} \ge 2W$

Provide explanations for your answers.

Conceptual Question C3.3

Given: A homogeneous disk is supported by two smooth, inclined surfaces. Let N_A and N_B represent the normal contact force on the disk due to the surfaces at points A and B, respectively.
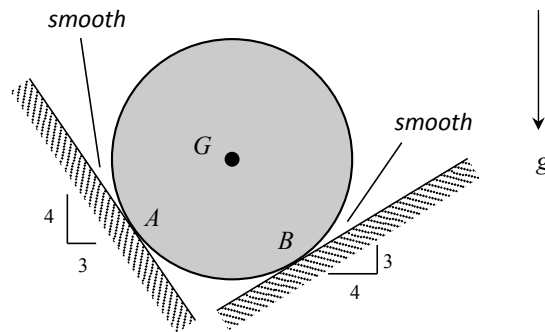
Find:

Circle the correct response below regarding the relative sizes of N_A and N_B:
- $N_A > N_B$
- $N_A = N_B$
- $N_A < N_B$

Circle the correct response below regarding the relative sizes of N_A and W:
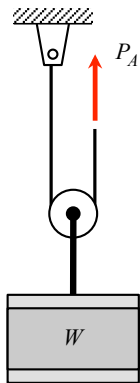- $N_A > W$
- $N_A = W$
- $N_A < W$

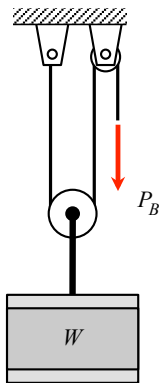Provide explanations for your answers.

Conceptua A 600-lb crate is supported by several rope-and-
pulley arrangements as shown in Figure 3. Determine

Given: Con for each arrangment the tension in the rope. Assume then below, each of which support
a crate havi tensions acts vertically. Draw the appropriate FBDs
for each.

Find: For e   s of the weight W.

| Pulley system A | Pulley system B | Pulley system C |
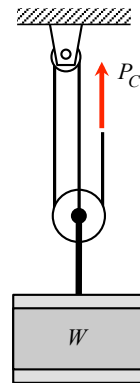
Given: le up of two cables: AC and BC. Pulley B
has a wei **Determine the force at A.** ulleys are negligible. The force P holds the
system ir

Find: Determine the force P.

A

P

C

B

W