

## Friction Conceptual Problem



A box of bananas weighing 40.0N rests on a horizontal surface. The coefficient of static friction ( $\mu_s$ ) between the box and the surface is 0.40 and the coefficient of kinetic friction ( $\mu_k$ ) is 0.20.



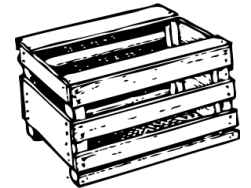
1) If no horizontal force is applied to the box and the box is at rest, how large is the friction force exerted on the box?

### Choices:

(A) 40.0 N (B) 18.0 N (C) 16.0 N (D) 8.0 N (E) 6.0 N (F) 0.0 N

(G) None of the above

(H) Unable to determine with the given information



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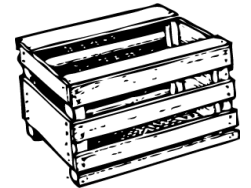
2) What is the magnitude of the friction force if a monkey applies a horizontal force of 6.0 N to the box and the box is initially at rest?

### Choices:

(A) 40.0 N (B) 18.0 N (C) 16.0 N (D) 8.0 N (E) 6.0 N (F) 0.0 N

(G) None of the above

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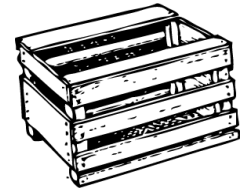
3) What is minimum horizontal force must the monkey apply to start the box in motion?

### Choices:

(A) 40.0 N (B) 18.0 N (C) 16.0 N (D) 8.0 N (E) 6.0 N (F) 0.0 N

(G) None of the above

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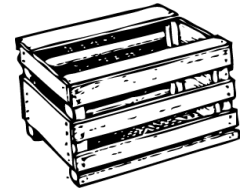
4) What minimum horizontal force must the monkey apply to keep the box moving at constant speed once it has been started?

### Choices:

(A) 40.0 N (B) 18.0 N (C) 16.0 N (D) 8.0 N (E) 6.0 N (F) 0.0 N

(G) None of the above

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5) If the monkey applies a horizontal force of 18.0 N, what is the magnitude of the friction force?

### Choices:

(A) 40.0 N (B) 18.0 N (C) 16.0 N (D) 8.0 N (E) 6.0 N (F) 0.0 N

(G) None of the above

(H) Unable to determine with the given information

