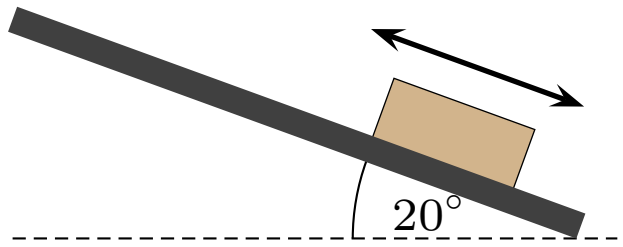
Question 1

A sled can move either up or down along a frictionless slope. Ignore air resistance.

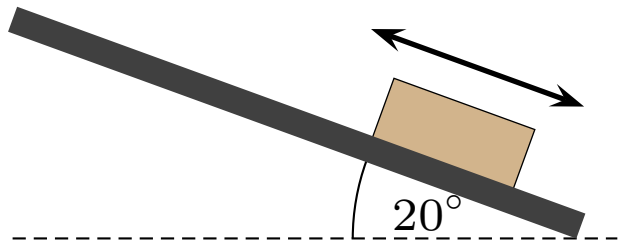


Which of the following is true of the free body diagram for this situation?

1. Contains two forces; same for either direction of motion.
2. Contains two forces; different for motion up vs down.
3. Contains more than two forces; same for either direction of motion.
4. Contains more than two forces; different for motion up vs down.

Question 2

A sled can move either up or down along a frictionless slope. Ignore air resistance.

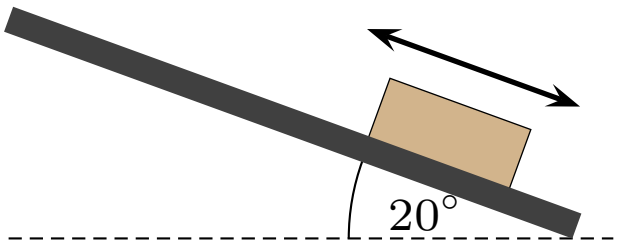


Which of the following is true of the magnitude of the acceleration of the sled?

1. Same for either direction of motion.
2. Larger when moving down.
3. Larger when moving up.

Question 3

A sled can move either up or down along a frictionless slope. Ignore air resistance.

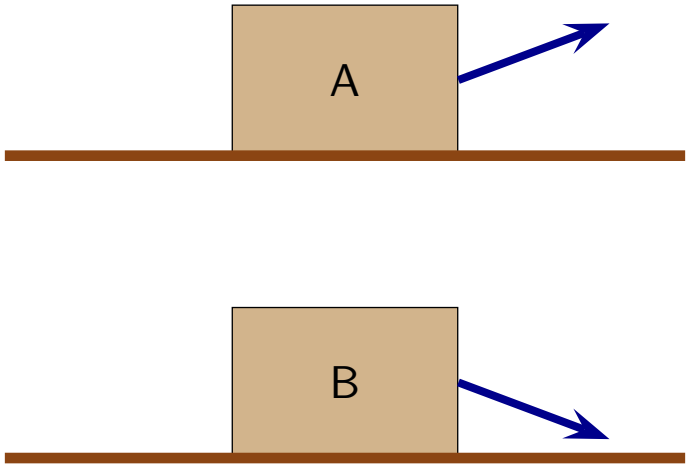


Let n be the magnitude of $\vec{\mathrm{n}}$ and $W = mg$ be the magnitude of $\vec{\mathrm{W}}$. Using the "tilted axes," which of the following is always true?

1. $n_x = 0$ and $n_y = n$
2. $n_x = 0$ and $n_y = -n$
3. $n_x = n$ and $n_y = 0$
4. $n_x = n$ and $n_y = n$
5. $n_x = n \cos 20^\circ$ and $n_x = n \sin 20^\circ$

Question 4

Two identical blocks are on the same surface. Forces with identical magnitudes act on the blocks at different angles.

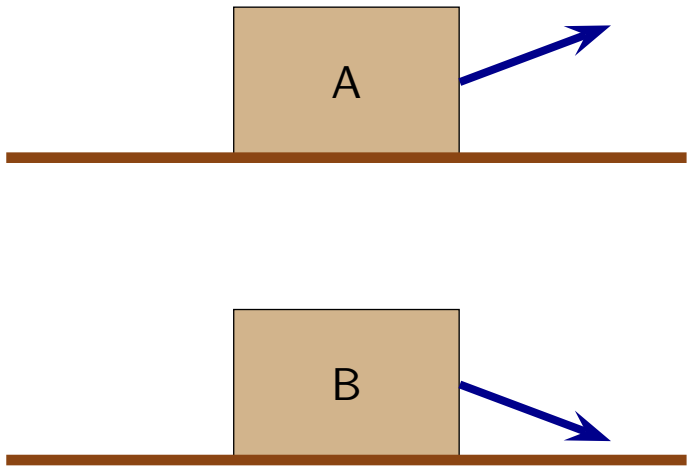


Which of the following is true?

1. μ_k is same for both.
2. μ_k is larger for A.
3. μ_k is smaller for A.

Question 5

Two identical blocks are on the same surface. Forces with identical magnitudes act on the blocks at different angles.



Which of the following is true?

1. f_k is same for both.
2. f_k is larger for A.
3. f_k is smaller for A.