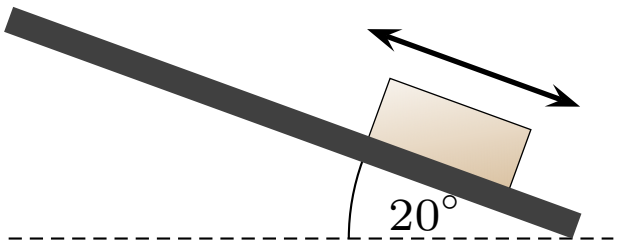
Warm Up Question 1

A walrus with mass m is pulled by a rope along a horizontal sheet of ice. The rope angles upward from the horizontal. Is the normal force exerted by the ice on the walrus the same as, larger than or smaller than mg? Explain your answer.

1. Smaller. Tension has a vertical component.
2. Smaller. The upward pull reduces the weight.
3. Same. Normal is equal and opposite to gravity.
4. Larger.

Question 1

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

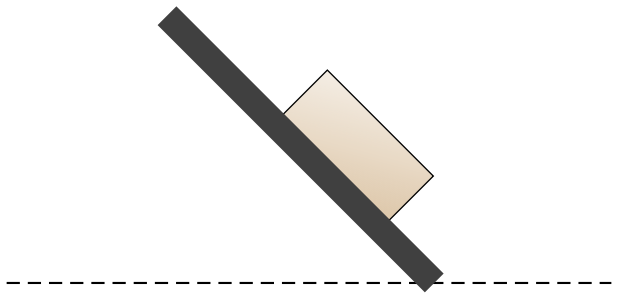


Which of the following is true of the free body diagram for this situation?

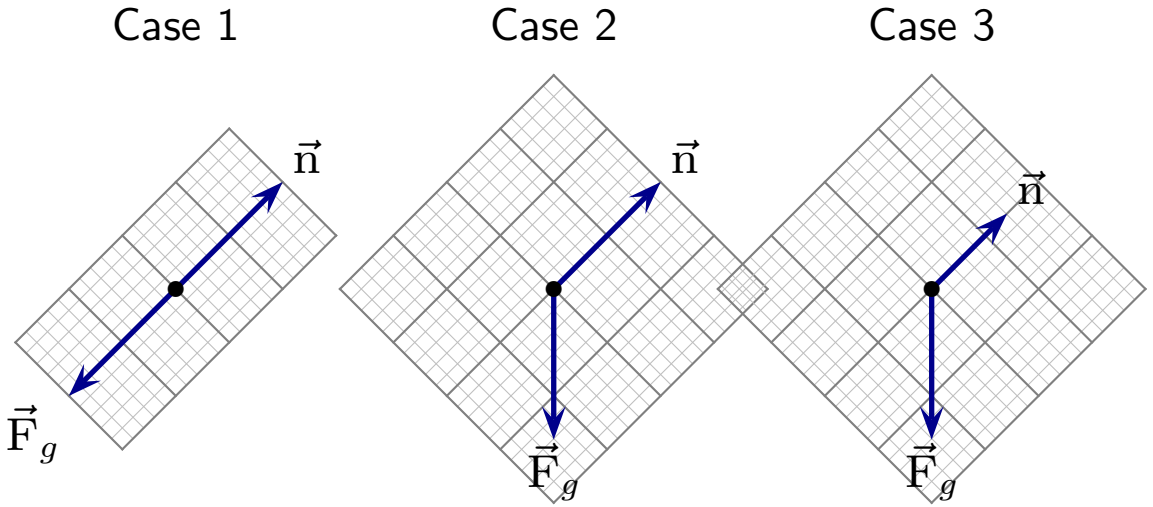
1. Contains two forces; same for either direction of motion.
2. Contains two forces; different for motion up vs down.
3. Contains more than two forces; same for either direction of motion.
4. Contains more than two forces; different for motion up vs down.

Question 2

A sled moves along the illustrated frictionless slope. Ignore air resistance.

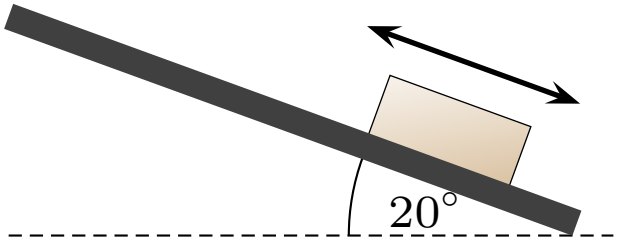


Which of the following is true of the free body diagram for this situation?



Question 3

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.

Warm Up Question 2

A person walks along a tightrope. The tightrope sags at the point where the person stands. When the person balances at rest left of the midpoint, the left side of the tightrope is steeper than the right. Is the tension in the left side the same as the right side? Explain your answer.

1. No. It's larger. Vertical components have to balance.
2. No. It's larger. Horizontal components have to balance.
3. No. It's larger. Other reason.
4. No. Directions are different.
5. Yes.