

Warm Up Question 1

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. Same. Horizontal components of forces cancel.
2. Same. If not it would accelerate.
3. Larger on left. Horizontal components match. Steeper angle left.
4. Larger on left. Vertical components cancel gravity.

Warm Up Question 2

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. There is an upward component of tension. If $n = mg$ there would be a net force up.
2. Equal. Vertical components cancel.
3. Larger. Tension and gravity add.