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Answers (11.03 - Qualitative/Quantitative Translation)

1. It is true that the direction of the force has changed. It was previously horizontal only, and changed to being directed both horizontal and vertical.

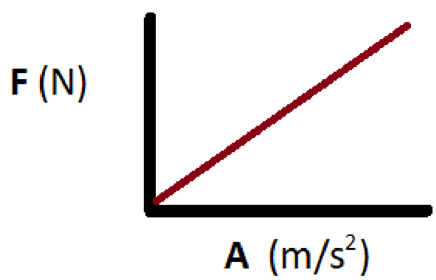
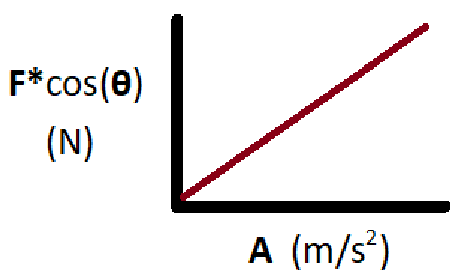
2. The acceleration A_2 is not greater than A_1. The amount of horizontal force has decreased. Since horizontal force is the net force in this example, acceleration would decrease as well.

3. The equation F=MA is valid, and so is the statement that if F and M are kept constant, then so will be the value of A.

4. In this question, the value of F is not the same. This is because force is a vector quantity which factors in direction. As the direction of the force changed, the amount of force that factored in the net force acting on the cart changed, and the acceleration would change as well.

5. Acceleration A_1 is greater than acceleration A_2. Less net force means less acceleration..

6. We don't ALWAYS consider only horizontal forces. We do so in this problem because the direction of the cart's acceleration is horizontal. If the cart were accelerating vertically instead, then it would be important to analyze the vertical forces responsible for the vertical acceleration.

7		This linear graph matches the equation: Fnet = ma Since the pulling force is the net force in this situation, the slope of the linear graph will represent the mass of the cart. **Mass = 0.25 kg**
8		This linear graph matches the equation: Fnet = ma Because of the angled direction, only the horizontal component of the pulling force is the net force in this situation. By multiplying the force magnitudes by the cosine of 30°, the net forces can be solved for, and those amounts should be graphed on the y-axis. The slope of this linear graph will represent the mass of the cart. **Mass = 0.75 kg**