1) \( W_1, W_2 \) and \( W_3 \) are the weights of three objects suspended by pulleys as shown. Assuming the pulleys in this system are frictionless and weightless that \( W_3 = 12 \) N, what are the values of \( W_1 \) and \( W_2 \)?

\[ W_1 = 8.0 \text{ N}, \quad W_2 = 11 \text{ N} \]

2) An object is suspended on a frictionless inclined plane by a rope parallel to the incline as shown to the right. If the angle of the incline is \( 25^\circ \) and the tension in the rope is \( 5000 \) N, what is the weight of the object?

\[ (1.2 \times 10^4 \text{ N}) \]

3) A 200.0 N child sitting on a playground swing is being pushed by her father. When the rope makes an angle of \( 27^\circ \) to the vertical what is the force exerted by her father? What is the tension in the rope, \( T \) below?

\[ (F = 1.0 \times 10^2 \text{ N}, \quad T = 220 \text{ N}) \]

4) Find the tensions \( T_1 \) and \( T_2 \) in the ropes shown in the diagram below.

\[ (T_2 = 82 \text{ N}, \quad T_1 = 15 \text{ N}) \]

5) A 15 kg object rests on a table on the right. A cord is attached to this object and to a wall. Another object is hung from this cord as shown. If the coefficient of friction between the 15 kg object and the table is 0.27, what is the maximum mass that can be hung, without movement? (2.3 kg)

6) A 735 N mountain climber is rappelling down the face of a vertical cliff as shown in the diagram below. If the rope makes an angle of \( 12^\circ \) with the cliff face, what is the tension in the rope? Assume that the climber pushes horizontally off the cliff. (750N)

7) Given the diagram to the right, find \( W \) and \( T_2 \)

\[ (110 \text{ N}, \quad 55 \text{ N respectively}) \]

8) A 675 N object is pulled horizontally by a force of 410 N as shown on the left. What is the angle, \( \theta \), between the rope and the vertical? (31°)