

Assignment Forces

Due: Wednesday, April 15, 2020 on google classroom site.

Name:

1. State Newton's Three Laws in full. [6 marks]

2. A car of mass 2000 kg has a driving force of 5000 N [E] and experiences a frictional force of 1200 N.
 - a. In which direction does the frictional force travel?
 - b. Draw the FBD of the car
 - c. Determine its acceleration with units and direction. [5 marks]

3. You are holding a 12 kg plank with a force of 200 N against the ceiling. What is the normal force in this situation if the plank is held still? Draw the FBD of the situation. [3 marks]

4. A wagon of mass 22 kg has David sitting on it with his 65 kg mass. If Aidan pulls the wagon with a force of 45 N up and 20 N to the right
 - a. what is the normal force on the wagon?
 - b. if the coefficient of friction is 0.2 what is the frictional force on the wagon?
 - c. What is the acceleration of the wagon? [6 marks]

5. Talya and Isabella are sitting in a parked 2000 kg car that has a coefficient of friction of 0.24 between its tires and the street. If they are suddenly hit from behind with a force of 45000 N what is their car's acceleration? What will happen to them in the car (what injuries will they sustain in a rear end collision)? [5 marks]