**FORCES Study Guide:**

1. What is friction?
2. How does friction affects motion?
3. Circle the positions gravity affects the ball below.



1. What is a balance force and give 2 examples?
2. What is an unbalance force and give 2 examples?
3. True/False? If an object is in motion and more force is applied, it will move slower.\_\_\_\_\_\_\_\_\_\_
4. True/False? A force can act to cause an object at rest to move or it can accelerate an object that is already moving. \_\_\_\_\_\_\_\_\_\_\_
5. True/False: Balanced forces acting on an object never changes the object’s motion. \_\_\_\_\_\_\_\_\_\_\_\_
6. How can a force change the motion of an object that is already moving?
7. A worker on the Earth and an astronaut on the Moon are each holding a hammer. If they let go of their hammers at the same time, which person’s hammer will hit the ground first? Why?
8. An object is moving at a constant speed. If a balanced force is applied in the opposite direction the object is moving, what will most likely happen?
9. When workers spread sand over icy bridges and roads in the winter, how does this help people drive on the roads?
10. An object is pulled northward with a force of 10 N and southward with a force of 15 N.
What is the net force on the object? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. During tug of war Janelle felt she was supergirl and attempted to beat Rameek. Janelle with one arm on the rope and the other at her side applied a 100 N force to the left, while Rameek applied a 100 N force with both hands to the right. What is the net force and direction on the rope?
12. Janelle finally decided to take this seriously and put both hands on the rope and applied a 150 N force to the left, while Rameek still struggled with his 100 N force to the right. What is the net force and direction of motion?
13. When unbalanced forces act on an object at rest, the object will \_\_\_\_\_\_\_\_\_\_\_\_\_.
14. Forces that are equal in size but opposite in direction are called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** forces.

­20. Forces that cause a change in the motion of an object are \_\_\_\_\_\_\_\_\_\_\_\_\_ forces.

1. If a marble and baseball is rolled across a table using the same force, which ball will roll the fastest and why?

22. Below is a diagram of a tug-a0war. Circle the correct word to complete the sentences that follow.



 a. The forces shown are PUSHING/ PULLING forces.

 b. The forces shown are acting in the SAME DIRECTION/ OPPOSITE DIRECTIONS.

 c. The forces are EQUAL/ NOT EQUAL.

 d. The forces are BALANCED/ UNBALANCED..

 e. Motion is to the RIGHT/ LEFT.

 f. What is the net force?

23. **Draw an example of an unbalanced force. Don’t forget to label how many Newtons of force are being used in each direction. (3 points)**