

Pulley Review

Name _____ Date _____ Period _____

1-3. Fill in each blank with the word or term that fits best. Choose from the words below.

one two wheel groove direction fixed resistance ideal mechanical advantage movable

1. The rope of a pulley fits into the _____ of its _____.

2. A single _____ pulley is attached to a surface. Its _____ is always one.

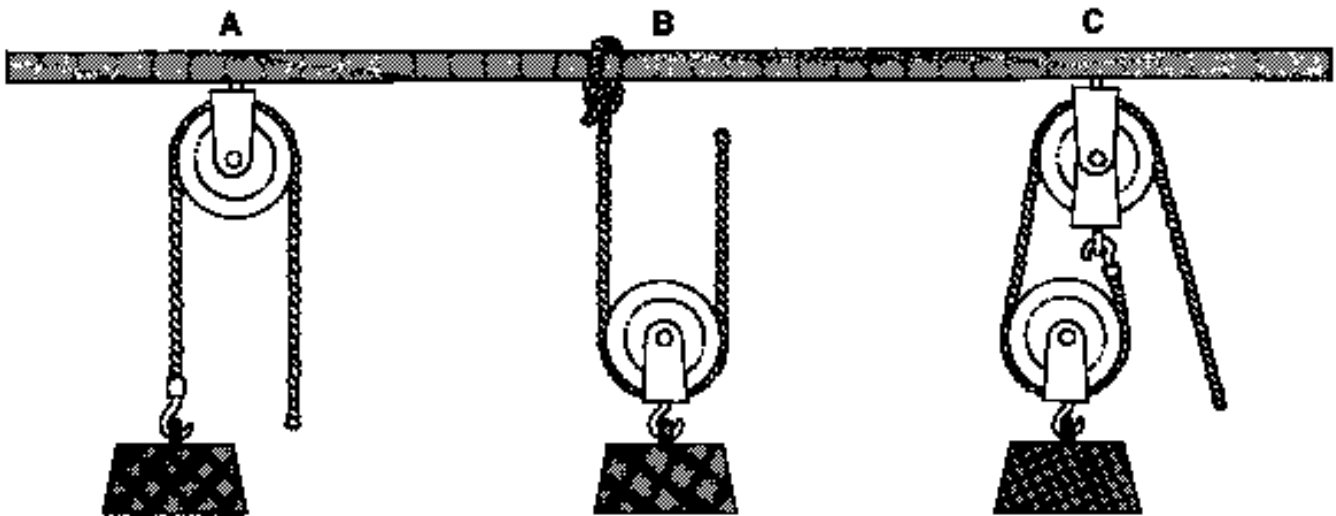
3. The IMA of a movable pulley is always _____. A pulley is used to change the _____ of an applied force.

4. Which statement below seems more likely to be true?

A. _____ A single fixed pulley has a higher IMA than a single movable pulley.

B. _____ A single movable pulley has a higher IMA than a single fixed pulley.

5. What is the IMA of each of the pulleys shown below?



A. _____

B. _____

C. _____

6. Answer in a complete sentence. Explain why a pulley is a simple machine.

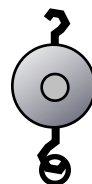
# of Supporting Strings	Input/Effort Force in N	Output/Resistance Force in N	Mechanical Advantage
2	5.00	10.00	
4	2.55	10.00	
6	1.72	10.00	
1	10.00	10.00	
3	3.30	10.00	
5	2.10	10.00	

The data table above shows sample data for the amount of force needed to lift a 10 N object using different numbers of supporting strings.

7. What kind of relationship exists between the numbers of supporting strings used and the input/effort force needed to lift the weight?

8. Calculate the mechanical advantage for each number of supporting strings and record your answers in the data table.

9. The ideal mechanical advantage for a pulley is equal to its number of supporting strings. Using your calculations from question 8, suggest a possible reason why as the number of supporting strings in a pulley increases, the mechanical advantage is no longer the same as the ideal mechanical advantage. Explain below.



10. Suppose a student that weighs 60 N, wants to use just their weight pulling downward, to lift up a crate weighing 160 N. What is the fewest number of support strings needed to do this? Draw the support strings on the pulleys to the right, showing how this pulley arrangement should look.

