

Simple Machines Learning Check



Write the letter of the correct answer in the blank before the statement.

D 1. The ratio of the output force to the input force which indicates how much the simple machine changes the force that is applied to it

B 2. The force you apply to the machine

C 3. The force exerted by the machine on the object to be moved

A 4. The mechanical advantage if no friction existed

- | |
|-------------------------------|
| A. Ideal Mechanical Advantage |
| B. Input Force |
| C. Output Force |
| D. Mechanical Advantage |

Write the letter in the blank. Use the pulley lab and the inclined plane lab to answer the following questions.

C 5. What was the output force for the pulley lab?
a. 2 b. 4 c. 6 d. 8

A 6. What type of pulley did you model using Figure A?
a. fixed pulley b. movable pulley c. single pulley system d. double pulley system

B 7. What type of pulley did you model using Figure B?
a. fixed pulley b. movable pulley c. single pulley system d. double pulley system

B 8. What happened to the input force as you changed or added pulleys to lift the sand? **Do not include the fixed pulley information when thinking about this answer.**
a. It increased. b. It decreased. c. It stayed the same.

B 9. What was the mechanical advantage of the pulley you used in A?
a. .5 b. 1 c. 2 d. 3

C 10. Fixed pulleys only change the ___ of a force.
a. distance b. size c. direction

A 11. What happened to the mechanical advantage (after the fixed pulley) as you changed or added pulleys to lift the sand?

- a. It increased. b. It decreased. c. It stayed the same.

NO! 12. Did the amount of work you did change as you added pulleys?
(Recall that Work = Force x Distance.) Answer yes or no in the blank.

C 13. What was the output force for the inclined plane lab?

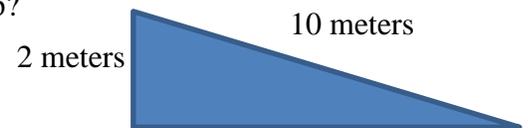
- a. 2 b. 4 c. 6 d. 8

B 14. What happened to the mechanical advantage as the inclined plane gets steeper?

- a. It increased. b. It decreased. c. It stayed the same.

5 15. What is the ideal mechanical advantage of this ramp?

$$\frac{10 \text{ m}}{2 \text{ m}} = 5 \text{ (remember the units cancel out)}$$



16-17. Complete the table. Round to the tenths place if needed.

Inclined Planes Data Collection

Length (m)	Height (m)	Ideal MA	Output	Input	Actual MA
9	3	<u>3</u>	5	2	2.5
20	2	10	6	3	<u>2</u>

A 18. The greater the difference between the ideal mechanical advantage and the actual mechanical advantage of a ramp, the ___ input force needed by people using the inclined plane for access into a building.

- a. less b. more c. same

C 19. Of the three ramps you modeled, which ramp would be safer for people to use if you were to build the ramp with the scaled dimensions?

- a. three books b. two books c. one book

B 20. Architects and builders have to remember that the ___ a ramp is, the more dangerous it becomes to anyone using it.

- a. less steep b. more steep c. flatter