





Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 In the image below, what **forces** are working **against** the man as he tries to **push** the rock?



**A** humidity and friction  
**B** gravity and friction  
**C** gravity and temperature  
**D** friction and momentum

2 In order for a man to move a **large** rock, what could be done to make the rock **move more easily**?



**A** decrease the man's force against the rock  
**B** increase the friction under the rock  
**C** decrease the air under the rock  
**D** decrease the friction under the rock

3 **Force** is measured in **units** called \_\_\_\_\_.

**A** calories  
**B** inches  
**C** newtons  
**D** neutrons

**F = ma**

4 To calculate the amount of force, a student would multiply **mass x acceleration**. Knowing this, how could the amount of force be maintained if the **mass** is **decreased**?

**A** increase acceleration  
**B** decrease acceleration

5




**PREVIEW**

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7

**A** friction remains the same  
**B** friction increases  
**C** friction decreases  
**D** gravity decreases



8


**A** 20 kg  
**B** 50 kg  
**C** 100 kg  
**D** 200 kg

**F = ma**

9 When a person rows a boat, he pushes the water **backwards**, but the boat goes **forward**. This is an example of **Newton's third law**, which states \_\_\_\_\_.

**A** what comes up must come down  
**B** energy is always conserved  
**C** for every action there is an equal and opposite reaction  
**D** every object in motion tends to stay in motion unless acted on by an external force

10 **Net force** is the **difference** between a force going one way and another force going the opposite way. As a boy is rowing **forward**, what could happen to **reduce** his net force?



**A** wind pushes him forward  
**B** wind pushes him back  
**C** waves push him forward  
**D** humidity holds him back



## ANSWER KEY

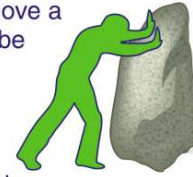
In the image below, what **forces** are working **against** the man as he tries to **push** the rock?



(b)

- A humidity and friction
- B gravity and friction
- C gravity and temperature
- D friction and momentum

In order for a man to move a **large** rock, what could be done to make the rock **move more easily**?



(d)

- A decrease the man's force against the rock
- B increase the friction under the rock
- C decrease the air under the rock
- D decrease the friction under the rock

**Force** is measured in **units** called \_\_\_\_\_.

- A calories
- B inches
- C newtons
- D neutrons

$$F = ma$$

(c)

To calculate the amount of force, a student would multiply **mass x acceleration**. Knowing this, how could the amount of force be maintained if the **mass** is **decreased**?

- A increase acceleration
- B decrease acceleration
- C decrease momentum

(a)



## PREVIEW

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- B friction increases
- C friction decreases
- D gravity decreases

- A 20 kg
- B 50 kg
- C 100 kg
- D 200 kg

$$F = ma$$

When a person rows a boat, he pushes the water **backwards**, but the boat goes **forward**. This is an example of **Newton's third law**, which states \_\_\_\_\_.

- A what comes up must come down
- B energy is always conserved
- C for every action there is an equal and opposite reaction
- D every object in motion tends to stay in motion unless acted on by an external force

(c)

**Net force** is the **difference** between a force going one way and another force going the opposite way. As a boy is rowing **forward**, what could happen to **reduce** his net force?



(b)

- A wind pushes him forward
- B wind pushes him back
- C waves push him forward
- D humidity holds him back