Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Conservation of Momentum**

***The total momentum before must equal the total momentum after.***

Two kittens are taking a nap on top of each other. All of a sudden one kitten is woken by a loud noise and throws his sleeping brother off of him. What velocity does the second kitten fly off of his brother? Follow the same steps used in class to solve the following questions

1. What is the initial momentum of kitten A?
2. What is the initial momentum of kitten B?
3. What is the total momentum of the kittens while they are sleeping?
4. What is the total momentum of the kittens when they wake up?
5. What is the momentum of kitten A after they wake up?
6. What is the momentum of kitten B after they wake up?
7. What is the velocity of kitten B after they wake up?





Momentum of Kitten B = \_\_\_\_\_\_\_

Kitten B

m = 3 kg

v = \_\_\_\_\_\_m/s

Momentum of Kitten A = \_\_\_\_\_\_\_

After the kittens wake up

Total Momentum after they wake up = \_\_\_\_\_\_\_\_\_\_

Total Momentum before they wake up = \_\_\_\_\_\_\_\_\_\_

Momentum of Kitten A = \_\_\_\_\_\_\_

Momentum of Kitten B = \_\_\_\_\_\_\_

**B**

**A**



Before the kittens wake up

Kitten A

m = 5 kg

v = 3 m/s

Kitten B

m = 3 kg

v = 0 m/s

Kitten A

m = 5 kg

v = 0 m/s





Momentum of Kitten B = \_\_\_\_\_\_\_

Kitten B

m = 4 kg

v = \_\_\_\_\_\_m/s

Momentum of Kitten A = \_\_\_\_\_\_\_

After the kittens wake up

Total Momentum after they wake up = \_\_\_\_\_\_\_\_\_\_

Total Momentum before they wake up = \_\_\_\_\_\_\_\_\_\_

Momentum of Kitten A = \_\_\_\_\_\_\_

Momentum of Kitten B = \_\_\_\_\_\_\_

**B**

**A**



Before the kittens wake up

Kitten A

m = 8 kg

v = 3 m/s

Kitten B

m = 4 kg

v = 0 m/s

Kitten A

m = 8 kg

v = 0 m/s





Momentum of Kitten B = \_\_\_\_\_\_\_

Kitten B

m = 2 kg

v = \_\_\_\_\_\_m/s

Momentum of Kitten A = \_\_\_\_\_\_\_

After the kittens wake up

Total Momentum after they wake up = \_\_\_\_\_\_\_\_\_\_

Total Momentum before they wake up = \_\_\_\_\_\_\_\_\_\_

Momentum of Kitten A = \_\_\_\_\_\_\_

Momentum of Kitten B = \_\_\_\_\_\_\_

**B**

**A**



Before the kittens wake up

Kitten A

m = 6 kg

v = 3 m/s

Kitten B

m = 2 kg

v = 0 m/s

Kitten A

m = 6 kg

v = 0 m/s