

Chapter 12 Study Guide (PS)

1. Explain projectile motion?

2. State Newton's 3 Laws?

1st: _____

2nd: _____

3rd: _____

3. Does an object at rest have momentum? Explain.

4. Complete the "other" Math Skills Problems

5. What are the 4 basic forces?

Chapter 12 Study Guide (PS)

6. What is inertia?

7. How are weight and mass related?

8. What is the label for momentum? _____

9. Explain the Law of Conservation of Momentum.

10. Give an example of something with a lot of inertia. Explain.

11. Give an example of something with little inertia. Explain.

12. What are the base units for Newtons (i.e. what must your labels be in?)

13. Explain how a seatbelt helps keep you safe. (Not because it keeps you in the vehicle). Which of Newton's Laws does this relate to?

Chapter 12 Study Guide (PS)

14. What equation is used to represent Newton's 2nd law?

15. A concrete truck filled with concrete drives 100 km/h to its job site. After it has poured out all its concrete, it drives back at a rate of 100 km/h. At what point does the truck have the most momentum? Explain.

16. Give an everyday example of Newton's 3rd Law.

17. What is the mass of a person walking at a speed of .8 m/s if the person's momentum is 52.0 kg m/s?

18. Explain why astronauts are not actually weightless.

19. What is "G"? What is the value of "G"?

Chapter 12 Study Guide (PS)

20. Compare the momentum of...

- a. 1000 gram ball at 50 m/s and a 5 kg box at 10 m/s

- b. 100 gram ball at 5 m/s and a 1.2 kg box at 2 km/h

21. Why is gravity called a long range force?

22. What is terminal velocity?

23. What is another name for Newton's 1st Law? _____

24. Why does a dart shot straight forward and a dropped dart hit the ground at the same time? (assume they are starting at the same height)

25. What happens to the force applied to an object when the acceleration is doubled? Tripled?

Chapter 12 Study Guide (PS)

26. What is your definition of gravity?

27. What is the mass of a 40 N object on Earth?

28. What happened to the mass of an object if the acceleration stayed constant but the force tripled?

29. Which of the following has the largest momentum? Explain.

a. A semi parked on a scale or the flying ball?

b. A 3000 kg car driving at 8 m/s or a 5000 kg car driving at 5.5 m/s?

30. Give an everyday example of Newton's First Law of Motion.

31. What is momentum?

Chapter 12 Study Guide (PS)

32. Does mass affect how quickly an object accelerates to Earth? Explain.

33. What is the equation for momentum?

34. What is the acceleration due to gravity on Earth? _____

35. What 2 factors affect gravity?

36. When you throw a ball (in a place with no air resistance), explain why the horizontal speed stay constant but the vertical speed changes?

37. Name 2 ways to increase the weight of an object.

38. Newton's 2nd Law describes the relationship between what three variables?

39. What two factors make up momentum?

40. What 2 forces are balanced during terminal velocity?

Chapter 12 Study Guide (PS)

41. What is the SI unit for Force? _____

42. Using the Law of Gravitational Force equation, answer the following questions.

a. What would happen to the Force if one of the masses was doubled?

b. What would happen to the Force if both masses were doubled?

c. What would happen to the Force if the distance was doubled?

d. What would happen to the Force if the distance was halved?

43. Which set of objects experiences a larger gravitational pull?



WHY?

44. Which set of objects experiences a larger gravitational pull?



WHY?

Chapter 12 Study Guide (PS)

45. Fill in the missing values in the table.

OBJECT	Mass (Kg)	Velocity (m/s)	Momentum (Kg*m/s)
Blackbird	0.04	19	
Football player	100	10	
Skier		20	1200
Bullet	0.004		2.4
Frog		12	10.8
Meteorite	0.1	1000	
Baseball		30	4.2
Rocket	36,000		64,800,000
Wagon	2		6
Satellite	3000	8000	

Put objects in order of momentum (smallest to largest):

Does the order of these objects surprise you? If you had seen just the names of the objects without the data, would you have placed some in a different order? WHY?

Do you think these objects would always be placed in the same order according to momentum? Why or why not?