

CHRIST CHURCH FOUNDATION SCHOOL

3RD FORM PHYSICS ASSIGNMENT

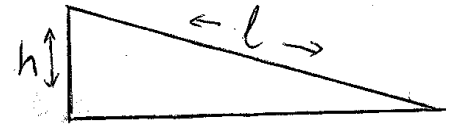
DUE DATE: MARCH 1ST 2018

1. In standard form the number 4176.38 is correctly written as

- A 4.17638×10^1 B 4.17638×10^2 C 4.17638×10^3 D 4176×10^4

2. 11 The PE of an object at the top of this inclined plane is calculated as

- A mgh B $mg l$ C mg/l D mg/h



3. Which of the following is a scalar quantity?

- A. Acceleration B. Speed C. Velocity D. Momentum

4. Which of these quantities are dimensionless quantities

1 Relative density 11 Density 111 Force 1V Mechanical Advantage

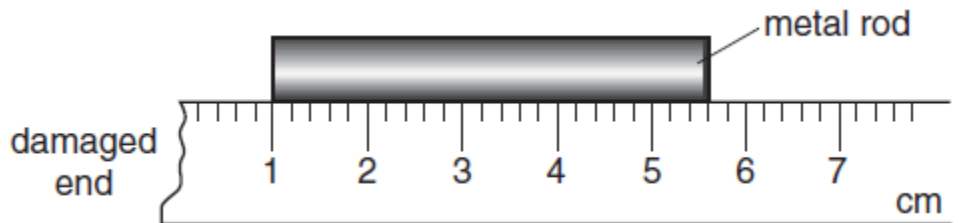
- A 1 and 11 B 11 and 111 C 1 and 1V D 11 and 1V

5. Which of the following is a base unit?

- A Square meter B Newton C Second D Cubic meter

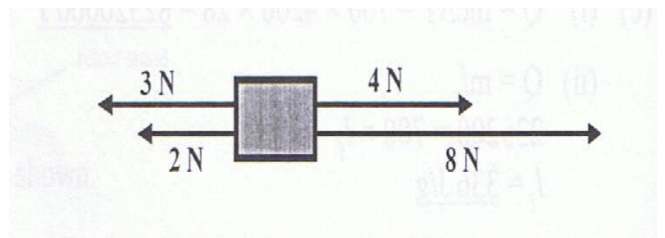
6. The length of this metal rod is

- A. 43mm
B. 46mm
C. 53mm
D. 56mm

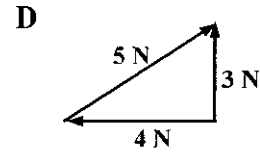
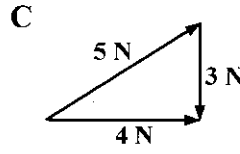
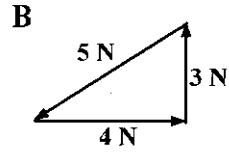
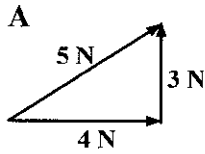


7. The diagram shows four forces acting on a block. What is the resultant force?

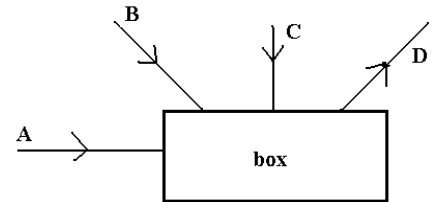
- A Zero B 7N to left
C 7N to right D 12N to right



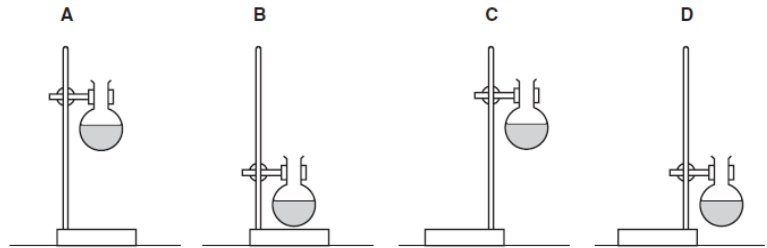
8. Which diagram correctly shows the vector addition of 4N and 3N forces?



9. Which force when applied to move this box will not change its apparent weight?



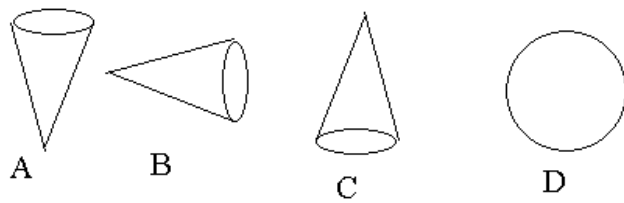
10. Which apparatus in the diagram is the least stable?



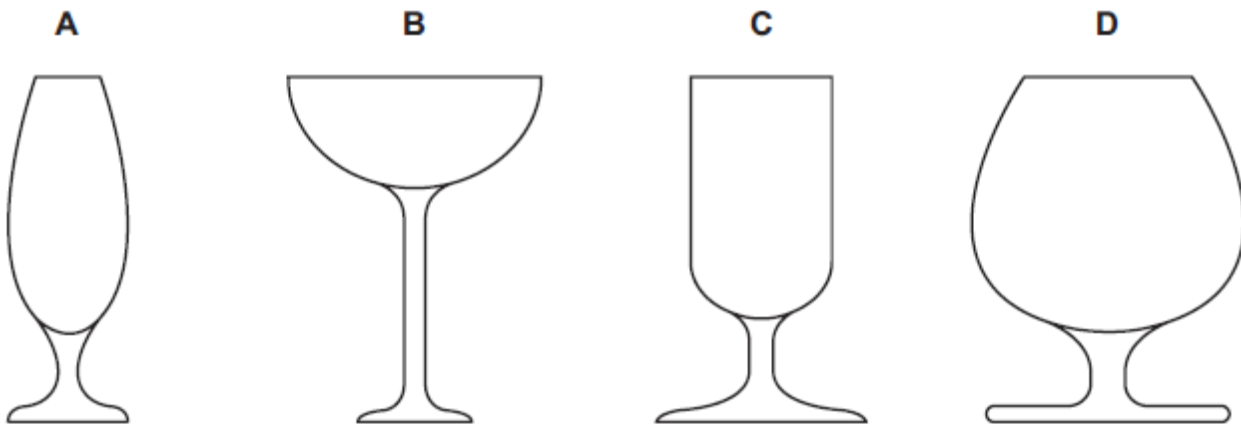
11. Which is the force below acts between the surfaces of two objects to prevent them from sliding

- A Friction B Magnetic C Electric D Gravitational

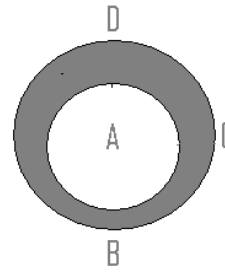
12. Which object is in unstable equilibrium?



13. Which of these glasses will be least stable when filled with water?



14. Which is the most likely position of the center of gravity of this donut?



15. According to Newton's third law, if the sun pulls on the earth

- A Then the earth pushes the sun with same force
- B The earth pulls the sun with the same force
- C The earth is drawn to the sun
- D An unbalance force acts on the earth to make it orbit the sun

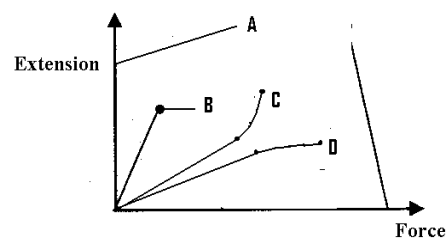
16. The equation used to calculate kinetic is

- A $\frac{1}{2} mv$
- B mv^2
- C $\frac{1}{2} mv^3$
- D $\frac{1}{2} mv^2$

17. The unit of electric charge is the

- A Watt
- B Ampere
- C Coulomb
- D Ohm

18. Which extension vs force graph represents Hooke's law?



19. **How much energy is transferred by five 60W bulb transfer in 20 minutes?**

- A 30 J
- B 1200 J
- C 7200 J
- D 360,000 J

20. **A hairdryer transfers 3.6×10^5 J of energy in 5 minutes. What is the power rating of the hairdryer?**

- A 360 W
- B 720 W
- C 1,200 W
- D 72,000 W

21. **Which of the statements below is correct about the environmental impact of energy resources?**
- A Coal, oil and natural gas all give out large amounts of carbon dioxide when burned
B Nuclear fuel is a major contributor towards global warming.
C Hydroelectric dams and wind farms do not affect the habitats of plants and animals
D Wind farms are not considered to be a cause of visual pollution
22. **Which of the following statements about the reliability of different energy resources is true?**
- A Wave power is the most reliable of all the energy resources
B Tidal power is non-renewable and very reliable
C Wind and solar power are highly reliable renewable resources
D Coal and nuclear fuel are non-renewable and reliable sources of energy
23. **A lawnmower transfers 140W of every 250W of its input power to useful energy. Which of the following rows is correct for this example?**
- A The efficiency of the lawnmower is 44% and 140W is wasted
B The efficiency of the lawnmower is 56% and 110W is wasted
C The efficiency of the lawnmower is 56% and 140W is wasted
D The efficiency of the lawnmower is 178% and 110 W is wasted
24. **Which statement below about energy transfers is true?**
- A Energy can be transferred, created or destroyed
B The energy in a closed system is greater after a transfer than it was before the transfer
C Energy transfers usually occur so that no energy is wasted to the surroundings
D Energy can be usefully transferred and wasted but cannot be created or destroyed
25. **Which row below shows the changes to energy stores when a moving car is brought to a stop on a flat road.**
- A Kinetic energy store is transferred to a thermal store when brakes are applied
B Kinetic energy store is transferred to a gravitational potential energy store
C Gravitational potential store is transferred to a thermal store
D Thermal store is transferred to a kinetic energy store
26. Which of the following are **vector** quantities?
- A). mass and velocity
 - B). acceleration and force
 - C). mass and displacement
 - D). velocity and time

27. "Whenever 2 objects interact, the forces between them are equal and opposite". This is

- A). Newton's First Law
- B). Newton's Second law
- C). Newton's Third law
- D). not one of Newton's Laws

30. **Newton's 3rd law** is all about forces. Which of these is a clear demonstration of this law?

- A. The recoil of a gun
- B. An apple falling to the ground
- C. The force of gravity on all objects
- D. A comet would travel in a straight line if there was no gravity

31. What are the correct units for force?

- A. joules
- B. newtons
- C. watts
- D. m/s

32. A 100g toy car uses an electric motor that produces a force of 3 N. What is the car's acceleration?

- A. 30 N
- B. 300 N
- C. 3 N
- D. 0.3 N

33. Which of these is the correct formula linking mass and weight?

- A. weight = mass x gravitational field strength ($W = m \cdot g$)
- B. weight = mass \div gravitational field strength ($W = m/g$)
- C. mass = gravitational field strength x weight ($m = g \cdot W$)
- D. mass = gravitational field strength \div weight ($m = g/W$)

34. Which of these is the correct formula for density?

- A. density = mass x volume
- B. density = mass \div volume
- C. density = volume \div mass
- D. density = volume - mass

35. This metal cube of side 2cm has a mass of 32g.

The density is

- A. 2 g/cm³
- B. 4 g/cm³
- C. 8 g/cm³
- D. 16 g/cm³

36. Which one of these is a longitudinal wave?

- A. Sound waves.
- B. Water waves (on the surface).
- C. Light waves.
- D. Microwaves.

37. The number of waves passing a point each second is the...

- A. period.
- B. frequency.
- C. wavelength.
- D. wave speed.

38. What is the unit used to measure the number of waves per second?

- A. watts (W)
- B. meters per second (m/s)
- C. decibels (dB)
- D. hertz (Hz)

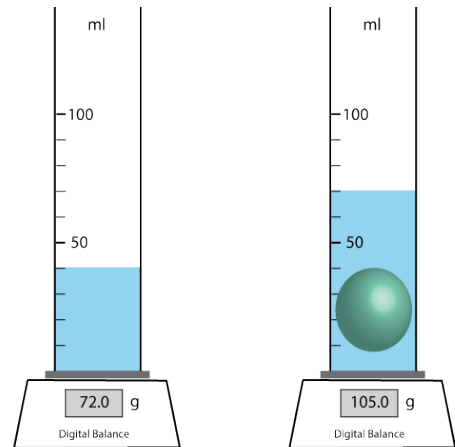
Numbers 39. and 40. both refer to the diagram on the right.

39. The water has been...

- A. dispersed.
- B. displaced.
- C. diffracted.
- D. diffused.

40. The density of the ball is:

- A. 0.47 g/cm^3
- B. 3.50 g/cm^3
- C. 0.91 g/cm^3
- D. 1.10 g/cm^3



In a small pool by the beach, 20 small water waves hit a rock every 5 seconds.

41. The frequency of the waves is....

- A. 0.25 Hz
- B. 0.25 s
- C. 4 Hz
- D. 4 s

42. The period of the waves is....

- A. 0.25 Hz
- B. 0.25 s
- C. 4 Hz
- D. 4 s

43. The time period of a sound wave with a frequency of 200 Hz will be...

- A. 0.5 s
- B. 0.2 s
- C. 5 ms
- D. 2 ms

44. Which of these is the **standard** unit for wave speed?

- A. m Hz
- B. Hz / m
- C. m/s
- D. s/m

45. Work done is measured in

- A) joules
- B) watts
- C) coulombs
- D) newtons

46. Which of these is NOT a store of energy?

- A) chemical
- B) gravitational potential
- C) friction
- D) kinetic

47. What is the formula for work done?

- A) Work done = force x distance
- B) Work done = force ÷ distance
- C) Work done = mass x acceleration
- D) Work done = mass ÷ acceleration

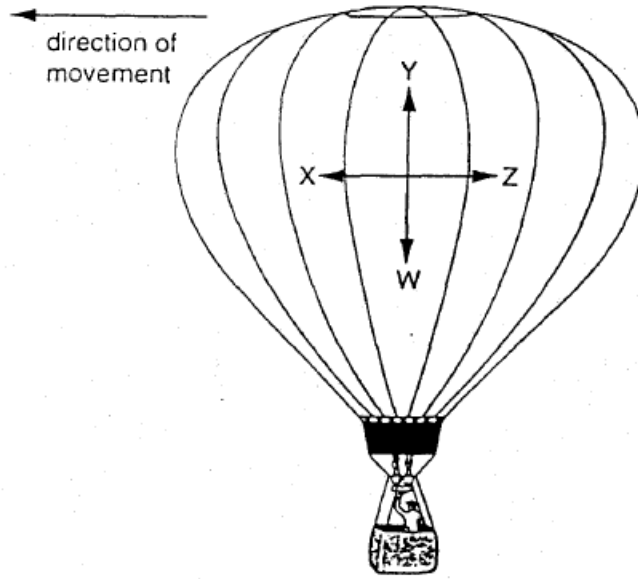
48. Circle the energy resources listed below which are classed as non-renewable?

- Hydroelectric
- Tidal
- Oil
- Wave
- Coal
- Nuclear
- Solar
- Geothermal
- Wind
- Nuclear
- Gas

49. A tennis ball of mass 100g is thrown at a speed of 8 m/s. It has a kinetic energy of:

- A) 3.2 J
- B) 6.4 J
- C) 3200 J
- D) 6400 J

50. A hot-air balloon moves in the direction shown at constant speed and at constant height. W, X, Y and Z are the forces acting on the balloon.



Which statement about the forces is correct?

- A Z is equal to X and W is equal to Y.
- B Z is equal to X and W is less than Y.
- C Z is less than X and W is equal to Y.
- D Z is less than X and W is less than Y.