

AP physics C - Webreview (practice test) chapter 1**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. In mechanics, physicists use three basic quantities to derive additional quantities. Mass is one of the three quantities. What are the other two?
- length and force
 - power and force
 - length and time
 - force and time
 - power and time
- _____ 2. The prefixes which are abbreviated p, n, and G represent which of the following?
- 10^{-2} , 10^{-6} , and 10^{15}
 - 10^{-9} , 10^6 , and 10^{10}
 - 10^{-12} , 10^{-9} , and 10^9
 - 10^{-15} , 10^{-6} , and 10^{12}
 - 10^{-10} , 10^{-9} , and 10^6
- _____ 3. One year is about _____ seconds while one day is exactly _____ seconds.
- 3.16×10^7 , 86 400
 - 5.26×10^5 , 86 400
 - 3.16×10^7 , 8 640
 - 1.04×10^6 , 36 000
 - 1.58×10^7 , 36 000
- _____ 4. Which formula is dimensionally consistent with an expression yielding a value for velocity? (a is acceleration, x is distance, and t is time)
- v/t^2
 - vx^2
 - v^2/t
 - at
 - v/x^2
- _____ 5. If the displacement of an object, x , is related to velocity, v , according to the relation $x = Av$, the constant, A , has the dimension of which of the following?
- acceleration
 - length
 - time
 - area
 - volume
- _____ 6. The speed of a boat is often given in knots. If a speed of 5 knots were expressed in the SI system of units, the units would be:
- m.
 - s.
 - m/s.
 - kg/s.
 - m^2 .

- _____ 7. Suppose an equation relating position, x , to time, t , is given by $x = b t^3 + c t^4$, where b and c are constants. The dimensions of b and c are respectively:
- T^3, T^4 .
 - $1/T^3, 1/T^4$.
 - $L/T^3, L/T^4$.
 - $L^2 \cdot T^3, L^2 \cdot T^4$.
 - $L \cdot T^3, L \cdot T^4$.
- _____ 8. Which one of the choices below represents the preferred practice regarding significant figures when adding the following: $12.4 + 11 + 67.37 + 4.201$?
- 94.971
 - 94.97
 - 95.0
 - 95
 - 100
- _____ 9. The length and width of a standard sheet of paper is measured, and then the area is found by calculation to be 93.50 in^2 . The number of significant figures in the width measurement must be at least:
- 1.
 - 2.
 - 3.
 - 4.
 - none of the above
- _____ 10. The number 0.00017 has how many significant figures?
- 2
 - 3
 - 5
 - 6
 - 4
- _____ 11. A cereal box has the dimensions of $0.19 \text{ m} \times 0.28 \text{ m} \times 0.070 \text{ m}$. If there are 3.28 feet per meter, then what is the volume of the box in cubic feet?
- 0.13 cubic feet
 - 0.040 cubic feet
 - 0.012 cubic feet
 - 0.003 7 cubic feet
 - 0.11 cubic feet
- _____ 12. The distance to the Andromeda Galaxy is estimated at about 2×10^6 light years. A light year is the distance traveled by light in one year; if the speed of light is $3 \times 10^8 \text{ m/s}$, about how far is it from our galaxy to Andromeda? (1 year = $3.15 \times 10^7 \text{ s}$)
- $10 \times 10^{15} \text{ m}$
 - $1 \times 10^{18} \text{ m}$
 - $2 \times 10^{22} \text{ m}$
 - $6 \times 10^{12} \text{ m}$
 - $8 \times 10^{20} \text{ m}$

- _____ 13. Water flows into a swimming pool at the rate of 8.0 gal/min. The pool is 16 ft wide, 32 ft long and 8.0 ft deep. How long does it take to fill? (1 U.S. gallon = 231 cubic inches)
- 32 hours
 - 64 hours
 - 48 hours
 - 24 hours
 - 16 hours
- _____ 14. The mass of the sun is 2.0×10^{30} kg, and the mass of a hydrogen atom is 1.67×10^{-27} kg. If we assume that the sun is mostly composed of hydrogen, how many atoms are there in the sun?
- 1.2×10^{56} atoms
 - 3.4×10^{56} atoms
 - 1.2×10^{57} atoms
 - 2.4×10^{57} atoms
 - 3.2×10^{57} atoms
- _____ 15. A physics class in a large lecture hall has 150 students. The total mass of the students is about _____ kg.
- 10^2
 - 10^3
 - 10^4
 - 10^5
 - 10^6
- _____ 16. An apartment has 1100 ft² of floor space. What is the approximate volume of the apartment?
- 10^3 ft³
 - 10^4 ft³
 - 10^5 ft³
 - 10^6 ft³
 - 10^7 ft³
- _____ 17. Which point is nearest the x axis?
- (-3, 4)
 - (4, 5)
 - (-5, 3)
 - (5, -2)
 - (-4, 4)
- _____ 18. A right triangle has sides 5.0 m, 12 m, and 13 m. The smallest angle of this triangle is nearest:
- 21°.
 - 23°.
 - 43°.
 - 55°.
 - Not attainable since this is not a right triangle.
- _____ 19. A train slowly climbs a 500-m mountain track which is at an angle of 10.0° with respect to the horizontal. How much altitude does it gain?
- 86.8 m
 - 88.2 m
 - 341 m
 - 492 m
 - 99.8 m

Name: _____

ID: A

- _____ 20. Note the expression: $y = A/x^3$. Which statement is most consistent with this expression?
- a. y is less than A
 - b. if x is halved, y is multiplied by eight
 - c. if x is doubled, y is multiplied by a factor of 8
 - d. y is greater than x
 - e. y is greater than A
- _____ 21. A circle has an area of 2.0 m^2 . A second circle has double the radius of the first. The area of the second circle is _____ times that of the first.
- a. 0.50
 - b. 2.0
 - c. 4.0
 - d. 8.0
 - e. 16

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Answer Section**

MULTIPLE CHOICE

1. C
2. C
3. A
4. D
5. C
6. C
7. C
8. D
9. D
10. A
11. A
12. C
13. B
14. C
15. C
16. B
17. D
18. B
19. A
20. B
21. C