

Chapter 01

1. Since 1983 the standard meter has been defined in terms of which of the following?

- a. specific alloy bar housed at Sevres, France
- b. wavelength of light emitted by krypton-86
- c. distance from the Earth's equator to the North Pole
- d. the distance light travels in a certain fraction of a second
- e. None of the above

ANSWER: d
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.1 Standards of Length, Mass, and Time
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2. Since 1967 the standard definition for the second has been based on which of the following?

- a. characteristic frequency of the cesium-133 atom
- b. average solar day
- c. sidereal day
- d. Greenwich Civil Time
- e. None of the above

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.1 Standards of Length, Mass, and Time
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3. In mechanics, physicists use three basic quantities to derive additional quantities. Mass is one of the three quantities. What are the other two?

- a. length and force
- b. power and force
- c. length and time
- d. force and time

ANSWER: c
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
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4. The prefixes which are abbreviated f, d, and T represent which of the following?

- a. 10^{-30} , 10^{-2} , and 10^{24}
- b. 10^{-15} , 10^2 , and 10^{24}
- c. 10^{-15} , 10^{-1} , and 10^{12}
- d. 10^{-13} , 10^2 , and 10^{24}
- e. 10^{-30} , 10^{-1} , and 10^{-2}

ANSWER: c
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.1 Standards of Length, Mass, and Time
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5. In 1983 the standard meter was redefined to what it is currently. What was the previous definition from 1960 based on?

- a. specific alloy bar housed at Sevres, France
- b. wavelength of light emitted by certain krypton atoms
- c. distance from the Earth's equator to the North Pole
- d. the distance light travels in a certain fraction of a second

ANSWER: b
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.1 Standards of Length, Mass, and Time
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6. The ratio T/m of the prefixes M and m has what value?

- a. 10^{16}
- b. 10^{14}
- c. 10^{15}
- d. 10^{13}
- e. 10^{17}

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.1 Standards of Length, Mass, and Time

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7. Which is smallest, an atom, a nucleus, a proton, or an electron?

- a. atom
- b. electron
- c. nucleus
- d. proton

ANSWER: b

POINTS: 1

DIFFICULTY: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

TOPICS: 1.2 The Building Blocks of Matter

NOTES: New item

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8. The nuclei of atoms contain

- a. electrons only.
- b. neutrons only.
- c. protons and electrons.
- d. protons and neutrons.

ANSWER: d

POINTS: 1

DIFFICULTY: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

TOPICS: 1.2 The Building Blocks of Matter

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9. When was the existence of the neutron confirmed?

- a. in ancient times
- b. in 1895
- c. in 1932
- d. in 1969

ANSWER: c

POINTS: 1

DIFFICULTY: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

TOPICS: 1.2 The Building Blocks of Matter

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10. The proton contains which of the following combination of quarks?

- a. two up quarks and one down quark
- b. one up quark and two down quarks
- c. one top quark and two bottom quarks
- d. two top quarks and one bottom quark

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.2 The Building Blocks of Matter
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11. A city uses 6.8×10^9 gallons of water every day. How many gallons per minute must be pumped from the reservoir to meet the city's water needs?

- a. 4.7E+6
- b. 7.9E+4
- c. 2.8E+8
- d. 6.8E+9

ANSWER: a
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.3 Dimensional Analysis
NOTES: New item
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12. A herd of sheep eats 10 bales of hay every 4 days. If a bale of hay costs \$2.85, how much will it cost to feed the sheep hay for one year?

- a. \$912.50
- b. \$2,600.63
- c. \$28.50
- d. \$3,650.00

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.3 Dimensional Analysis

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13. Sphere A has a radius of 5.00 cm, and sphere B has a radius of 8.80 cm. What is the difference in volume between the two spheres?

- a. $2\,330\text{ cm}^3$
- b. 556 cm^3
- c. $6\,990\text{ cm}^3$
- d. 165 cm^3

ANSWER: a
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.3 Dimensional Analysis
NOTES: New item
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14. One mole of ammonia (NH_3) has a mass of 17.0 g, and one mole is equal to 6.02×10^{23} molecules. How many hydrogen (H) atoms are in 55.0 g of ammonia? Note that each molecule of ammonia has 3 hydrogen atoms.

- a. $5.84\text{E}+24$
- b. $1.95\text{E}+24$
- c. $3.07\text{E}+25$
- d. $6.49\text{E}+23$

ANSWER: a
POINTS: 1
DIFFICULTY: 3
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.3 Dimensional Analysis
NOTES: New item
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15. Which formula is dimensionally consistent with an expression yielding a value for velocity? (a is acceleration, x is distance, and t is time)

- a. v/t^2
- b. vx^2
- c. v^2/t
- d. at

ANSWER: d

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POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.3 Dimensional Analysis
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16. Which expression is dimensionally consistent with an expression that would yield a value for time⁻¹? (v is velocity, x is distance, and t is time)

- a. v/x
- b. v^2/x
- c. x/t
- d. v^2t

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.3 Dimensional Analysis
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17. 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?

- a. acceleration
- b. length
- c. time
- d. area

ANSWER: c
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.3 Dimensional Analysis
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18. 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:

- a. m.
- b. s.
- c. m/s.
- d. kg/s.

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ANSWER: c
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
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19. If a is acceleration, v is velocity, x is position, and t is time, then which equation is not dimensionally correct?

- a. $t = x/v$
- b. $a = v^2/x$
- c. $v = a/t$
- d. $t^2 = 2x/a$

ANSWER: c
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.3 Dimensional Analysis
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20. Areas always have dimensions ____ while volumes always have dimensions ____.

- a. m^2, m^3
- b. L^2, L^3
- c. Both a and b are correct.
- d. No answer is correct because of the "always."

ANSWER: b
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.3 Dimensional Analysis
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21. When SI units are plugged into an equation, it is found that the units balance. Which of the following can we expect to be true for this equation?

- a. The equation will be dimensionally correct.
- b. The equation will be dimensionally correct except sometimes in cases when the right-hand side of the equation has more than one term.
- c. The equation will not be dimensionally correct.

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d. All constants of proportionality will be correct.

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.3 Dimensional Analysis
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22. Suppose an equation relating position, x , to time, t , is given by $x = bt^3 + ct^4$, where b and c are constants. The dimensions of b and c are respectively:

- a. T^3, T^4 .
- b. $1/T^3, 1/T^4$.
- c. $L/T^3, L/T^4$.
- d. $L^2 \cdot T^3, L^2 \cdot T^4$.

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.3 Dimensional Analysis
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23. Volume can be measured in units of m^3 . Which of the following unit combinations also result in volume?

- a. ft^2/m
- b. $cm \cdot ft$
- c. $cm^2 \cdot in.$
- d. $m^2 \cdot cm \cdot ft$

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.3 Dimensional Analysis
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24. Modern electroplaters can cover a surface area of $75.0 m^2$ with one troy ounce of gold (volume = $1.611 cm^3$). What is the thickness of the electroplated gold?

- a. $2.15E-8 m$
- b. $1.07E-8 m$
- c. $1.43E-8 m$

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- d. 4.30E-8 m
- e. None of the above

ANSWER: a
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.3 Dimensional Analysis
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25. The basic function of an automobile's carburetor is to atomize the gasoline and mix it with air to promote rapid combustion. Assume that 30.0 cm^3 of gasoline is atomized into N spherical droplets. Each droplet has a radius of $1.0 \times 10^{-5} \text{ m}$. Find the total surface area of these N spherical droplets.

- a. $3.0\text{E}+4 \text{ cm}^2$
- b. $1.2\text{E}+5 \text{ cm}^2$
- c. $1.8\text{E}+5 \text{ cm}^2$
- d. $9.0\text{E}+4 \text{ cm}^2$
- e. $1.1\text{E}+5 \text{ cm}^2$

ANSWER: d
POINTS: 1
DIFFICULTY: 3
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.3 Dimensional Analysis
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26. Which one of the choices below represents the preferred practice regarding significant figures when adding the following: $15.9 + 14 + 77.68 + 6.898$?

- a. 114.4780
- b. 114.478
- c. 114.48
- d. 114.5
- e. 114

ANSWER: e
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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27. Which one of the choices below represents the preferred practice regarding significant figures when multiplying the following: $15.0 \times 5.6 \times 2.33$?

- a. 200
- b. 195.720
- c. 195.72
- d. 195.7
- e. 196

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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28. Calculate $(0.83 + 0.049)(4.4 \times 10^3)$, keeping only significant figures.

- a. 3 900
- b. 3 868
- c. 3 886
- d. 3 644
- e. 4 000

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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29. The length and width of a standard sheet of paper is measured, and then the area is found by calculation to be 91.50 in.². The number of significant figures in the width measurement must be at least

- a. 1.
- b. 2.
- c. 3.
- d. 4.
- e. 5.

ANSWER: c
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True

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TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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30. How many significant figures does the number 3 600 have?

- a. 1
- b. 2
- c. 3
- d. 4
- e. One cannot tell with certainty when the number is written in the given form, but it will be one of the other given answers.

ANSWER: e
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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31. Assume when using a meter stick measuring can be done so that the last significant figure is in the tenth of a millimeter digit. If you are measuring an object with length between 6 and 7 cm, how many significant figures will result if you only use the part of the meter stick between the 1-cm and 9-cm positions?

- a. 2
- b. 3
- c. 4
- d. 5
- e. more than 5

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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32. The number 0.03 has how many significant figures?

- a. 2
- b. 3
- c. 5
- d. 6
- e. 7

ANSWER: a

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POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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33. Assume when using a meter stick measuring can be done so that the last significant figure is in the tenth of a millimeter digit. If you are measuring an object with length between 8 and 9 cm, how many significant figures will result if you only use the part of the meter stick between the 82-cm and 93-cm positions?

- a. 0
- b. 2
- c. 3
- d. 4
- e. more than 4

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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34. Assume when using a meter stick measuring can be done so that the last significant figure is in the tenth of a millimeter digit. If you are measuring an object with length between 25 and 53 cm, how many significant figures will result if you only use the part of the meter stick between the 3-cm and 85-cm positions?

- a. 1
- b. 2
- c. 3
- d. 4
- e. more than 4

ANSWER: d
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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35. There are other ways of expressing uncertainty besides significant figures. For example, suppose a quantity is known to have a value between 20.4 and 20.0, and our best estimate of the value is midrange at 20.2. We could write the number as 20.2 ± 0.2 and say that the number has a 1% uncertainty. We would also say it has 3 significant figures. If we square

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a number with 1% uncertainty (i.e., 2 parts in about 200) and 3 significant figures, what results?

- a. A number with 1% uncertainty and 3 significant figures.
- b. A number with 2% uncertainty and 3 significant figures.
- c. A number with 2% uncertainty and 2 significant figures.
- d. A number with 1% uncertainty and 2 significant figures.

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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36. Multiplying a 2-significant-figure number by a 4-significant-figure number and then dividing the product by a seven-significant-figure number yields a number with how many significant figures?

- a. 6/7
- b. 1
- c. 2
- d. 13
- e. 8/7

ANSWER: c
POINTS: 1
DIFFICULTY: 3
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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37. A rectangular-shaped patio has a base length equal to (24.5 ± 0.2) m and a height equal to (9.3 ± 0.1) m. What is the area of the patio, including its uncertainty?

- a. 228 ± 4
- b. 228 ± 2
- c. 228 ± 23
- d. 228 ± 6

ANSWER: a
POINTS: 1
DIFFICULTY: 3
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.4 Uncertainty in Measurement and Significant Figures
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38. On planet Z, the standard unit of length is the foose. Ann the Astronaut is 5.2 feet tall on Earth. She lands on planet Z and is measured to be 88 foosi tall. Her partner Rachael is 92 foosi tall. How tall is Rachael on Earth?

- a. 5.9 feet
- b. 5.4 feet
- c. 5.2 feet
- d. 5.1 feet
- e. 5.6 feet

ANSWER: b
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.5 Unit Conversions for Physical Quantities
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39. A cereal box has the dimensions of $0.14 \text{ m} \times 0.22 \text{ m} \times 0.070 \text{ m}$. If there are 3.28 feet per meter, then what is the volume of the box in cubic feet?

- a. $7.6\text{E}-2$ cubic feet
- b. $2.3\text{E}-2$ cubic feet
- c. $2.7\text{E}-1$ cubic feet
- d. $3.9\text{E}-3$ cubic feet
- e. $1.3\text{E}-2$ cubic feet

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.5 Unit Conversions for Physical Quantities
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40. A cement truck can pour 160 cubic yards of cement per hour. Express this in ft^3/min .

- a. $480 \text{ ft}^3/\text{min}$
- b. $2.67 \text{ ft}^3/\text{min}$
- c. $24.0 \text{ ft}^3/\text{min}$
- d. $8.00 \text{ ft}^3/\text{min}$
- e. $72.0 \text{ ft}^3/\text{min}$

ANSWER: e
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice

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HAS VARIABLES: True
TOPICS: 1.5 Unit Conversions for Physical Quantities
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41. A furlong is a distance of 220 yards. A fortnight is a time period of two weeks. A race horse is running at a speed of 6.00 yards per second. What is his speed in furlongs per fortnight?

- a. $3.30\text{E}+4$ furlongs/fortnight
- b. $4.71\text{E}+3$ furlongs/fortnight
- c. $3.31\text{E}+4$ furlongs/fortnight
- d. $3.33\text{E}+4$ furlongs/fortnight
- e. $3.28\text{E}+4$ furlongs/fortnight

ANSWER: a
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.5 Unit Conversions for Physical Quantities
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42. The distance to a hypothetical galaxy is estimated at about 7×10^6 light years. A light year is the distance traveled by light in one year; if the speed of light is 3×10^8 m/s, about how far is it from our galaxy to this hypothetical galaxy? (1 year = 3.15×10^7 s)

- a. $7\text{E}+21$ m
- b. $1\text{E}+9$ m
- c. $7\text{E}+22$ m
- d. $7\text{E}+5$ m

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.5 Unit Conversions for Physical Quantities
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43. Water flows into a swimming pool at the rate of 7.0 gal/min. The pool is 17 ft wide, 32 ft long and 7.0 ft deep. How long does it take to fill? (1 U.S. gallon = 231 cubic inches)

- a. 34 hours
- b. 68 hours
- c. 67 hours
- d. 136 hours
- e. 680 hours

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ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.5 Unit Conversions for Physical Quantities
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44. When NASA was communicating with astronauts on the Moon, the time from sending on the Earth to receiving on the Moon was 1.28 s. Find the distance from Earth to the Moon. (The speed of radio waves is 3.00×10^8 m/s.)

- a. 240 000 km
- b. 384 000 km
- c. 480 000 km
- d. 768 000 km

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.5 Unit Conversions for Physical Quantities
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45. The mass of a star is 8.0×10^{30} kg, and the mass of a hydrogen atom is 1.67×10^{-27} kg. If we assume that the star is mostly composed of hydrogen, approximately how many atoms are there in the star?

- a. 1.3E+4 atoms
- b. 2.1E-58 atoms
- c. 4.8E+57 atoms
- d. 8.0E+30 atoms

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.5 Unit Conversions for Physical Quantities
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46. The information on a one-gallon paint can is that the coverage, when properly applied, is 440 ft^2 . One gallon is 231 in^3 . What is the average thickness of the paint in such an application?

- a. $3.6\text{E}-3$ in
- b. $5.3\text{E}-1$ in
- c. $4.4\text{E}-2$ in

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- d. 1.3E-2 in
- e. 1.6E-1 in

ANSWER: a
POINTS: 1
DIFFICULTY: 3
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.5 Unit Conversions for Physical Quantities
DATE CREATED: 6/23/2016 3:27 PM
DATE MODIFIED: 12/30/2016 2:11 AM

47. The distance from New York to London is 3 470 miles. If a plane takes 6.0 hours to fly this distance, what is the plane's average speed in kilometers per hour? 1 mile = 1.609 km.

- a. 2 200
- b. 620
- c. 390
- d. 930

ANSWER: d
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.5 Unit Conversions for Physical Quantities
NOTES: New item
DATE CREATED: 11/28/2016 7:49 PM
DATE MODIFIED: 12/24/2016 7:24 PM

48. On planet Q the standard unit of volume is called the guppy. Space travelers from Earth have determined that one liter = 39.0 guppies. How many guppies are in 230 liters?

- a. 8 970 guppies
- b. 9 010 guppies
- c. 8 740 guppies
- d. 9 200 guppies
- e. 8 930 guppies

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.5 Unit Conversions for Physical Quantities
DATE CREATED: 6/23/2016 3:27 PM
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49. A marble has a radius of 16 mm. Approximately how many marbles will fit in a cube-shaped container with each side

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equal to 36 cm?

- a. 20
- b. 510
- c. 1 420
- d. 80

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.6 Estimates and Order-of-Magnitude Calculations
NOTES: New item
DATE CREATED: 11/28/2016 8:03 PM
DATE MODIFIED: 12/24/2016 7:26 PM

50. Approximately how many water molecules are in a lake with a volume of 12 100 km³? A water molecule measures approximately 2.75×10^{-10} m in length.

- a. 2E+15
- b. 5E+22
- c. 4E+14
- d. 6E+41

ANSWER: d
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.6 Estimates and Order-of-Magnitude Calculations
NOTES: New item
DATE CREATED: 11/28/2016 8:16 PM
DATE MODIFIED: 12/24/2016 7:28 PM

51. How long has it been that scientists have accepted that the nucleus of the atom consists of neutrons and protons? Think of your answers in terms of order of magnitude.

- a. about a decade
- b. about a century
- c. about a thousand years
- d. since Aristotle

ANSWER: b
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.6 Estimates and Order-of-Magnitude Calculations
DATE CREATED: 6/23/2016 3:27 PM

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DATE MODIFIED: 6/23/2016 3:27 PM

52. For which of the values below is $x > x^7$?

- a. $x = -2.0$
- b. $x = 0$
- c. $x = 1.0$
- d. $x = 2.0$
- e. $x = 4.0$

ANSWER: a

POINTS: 1

DIFFICULTY: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

TOPICS: 1.6 Estimates and Order-of-Magnitude Calculations

DATE CREATED: 6/23/2016 3:27 PM

DATE MODIFIED: 11/17/2016 5:52 PM

53. Assume everyone in the United States consumes one soft drink in an aluminum can every two days. If there are 270 million Americans, about how many tons of aluminum need to be recycled each year if each can weighs 1/15 pound and one ton = 2 000 pounds?

- a. 450 000 tons
- b. 1.6 million tons
- c. 3.3 million tons
- d. 0.82 million tons
- e. 410 000 tons

ANSWER: b

POINTS: 1

DIFFICULTY: 2

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

TOPICS: 1.6 Estimates and Order-of-Magnitude Calculations

DATE CREATED: 6/23/2016 3:27 PM

DATE MODIFIED: 12/29/2016 2:16 PM

54. A physics class in a large lecture hall has 150 students. The total mass of the students is about ____ kg.

- a. 10^4
- b. 10^5
- c. 10^6
- d. 10^7
- e. 10^8

ANSWER: a

POINTS: 1

DIFFICULTY: 2

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QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.6 Estimates and Order-of-Magnitude Calculations
NOTES: Revised item
DATE CREATED: 6/23/2016 3:27 PM
DATE MODIFIED: 8/14/2016 1:04 PM

55. An apartment has 1 100 ft² of floor space. What is the approximate volume of the apartment?

- a. 10² ft³
- b. 10³ ft³
- c. 10⁴ ft³
- d. 10⁵ ft³
- e. 10⁶ ft³

ANSWER: c
POINTS: 1
DIFFICULTY: 2

QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.6 Estimates and Order-of-Magnitude Calculations
DATE CREATED: 6/23/2016 3:27 PM
DATE MODIFIED: 1/6/2017 9:42 PM

56. A room in a house has a floor area of 110 ft². Which of the following is most likely the approximate volume of the room?

- a. 3 m³
- b. 30 m³
- c. 300 m³
- d. 3 000 m³
- e. 10 m³

ANSWER: b
POINTS: 1
DIFFICULTY: 2

QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.6 Estimates and Order-of-Magnitude Calculations
DATE CREATED: 6/23/2016 3:27 PM
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57. What is the distance between the two polar coordinates (2.0, 30°) and (9.0, 145°)?

- a. 6.0
- b. 10.0

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- c. 9.8
- d. 9.2

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.7 Coordinate Systems
NOTES: New item
DATE CREATED: 11/28/2016 9:19 PM
DATE MODIFIED: 12/29/2016 2:21 PM

58. Amir drives his ATV from coordinates (5.0 km, 25°) directly to (25.0 km, 45°) in 45 minutes. What is the ATV's speed?

- a. 0.5 km/h
- b. 20.4 km/h
- c. 27.2 km/h
- d. 34.0 km/h

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.7 Coordinate Systems
NOTES: New item
DATE CREATED: 11/28/2016 9:28 PM
DATE MODIFIED: 12/29/2016 2:21 PM

59. A mosquito flies diagonally from a corner at the floor of a rectangular room, with coordinates (0, 0, 0) to the opposite corner at the ceiling, with coordinates (5.5, 3.75, h) m at a rate of 0.8 m/s. If it takes the mosquito 11 seconds to make the direct flight, what is h ?

- a. 5.8 m
- b. 6.7 m
- c. 8.5 m
- d. 8.3 m

ANSWER: a
POINTS: 1
DIFFICULTY: 3
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.7 Coordinate Systems
NOTES: New item
DATE CREATED: 11/28/2016 8:54 PM
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60. Which point is nearest the x -axis?

- a. (1, 7)
- b. (-3, -6)
- c. (-7, 5)
- d. (-6, -4)
- e. (2, 3)

ANSWER: e
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.7 Coordinate Systems
DATE CREATED: 6/23/2016 3:27 PM
DATE MODIFIED: 7/28/2016 1:47 PM

61. If point A is located at coordinates $(-10, 7)$ and point B is located at coordinates $(8, -8)$, what is the distance from A to B if the units of the coordinated system are meters?

- a. 549 m
- b. 23 m
- c. 28 m
- d. 33 m
- e. 26 m

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.7 Coordinate Systems
DATE CREATED: 6/23/2016 3:27 PM
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62. Each edge of a cube has a length of 12.7 cm. What is the length of a diagonal of the cube going through the center of the cube?

- a. 24.0 in.
- b. 22.0 in.
- c. 25.5 in.
- d. 20.5 in.
- e. 8.7 in.

ANSWER: e
POINTS: 1
DIFFICULTY: 3
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True

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TOPICS:

1.7 Coordinate Systems

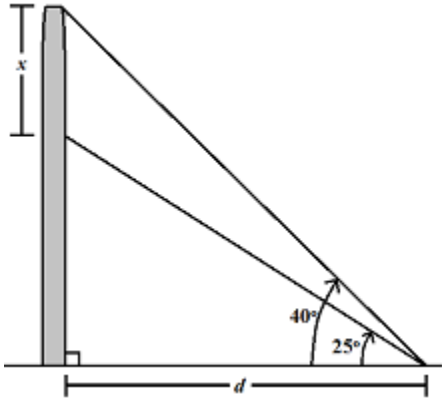
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DATE MODIFIED:

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63. Two wires support a post, with dimensions as shown in the figure. If $d = 14$ m, what is the value of x ?



- a. 7.5 m
- b. 6.5 m
- c. 18.3 m
- d. 5.2 m

ANSWER:

d

POINTS:

1

DIFFICULTY:

2

QUESTION TYPE:

Multiple Choice

HAS VARIABLES:

True

TOPICS:

1.8 Trigonometry Review

NOTES:

New item

DATE CREATED:

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1/19/2017 8:43 PM

64. A surveyor stands 100 m from the base of a building, and uses a transit to determine that the angle of elevation to the building's roof is 19.0° . If the transit height is 0.80 m, what is the height of the building?

- a. 94.6 m
- b. 95.4 m
- c. 35.2 m
- d. 34.4 m

ANSWER:

c

POINTS:

1

DIFFICULTY:

2

QUESTION TYPE:

Multiple Choice

HAS VARIABLES:

True

TOPICS:

1.8 Trigonometry Review

NOTES:

New item

DATE CREATED:

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65. Suppose the interior angles of a triangle are φ_1 , φ_2 , and φ_3 , with $\varphi_1 > \varphi_2 > \varphi_3$. Which side of the triangle is the shortest?
- The side opposite φ_1 .
 - The side opposite φ_2 .
 - The side opposite φ_3 .
 - More information is needed unless the triangle is a right triangle.

ANSWER: c
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.8 Trigonometry Review
DATE CREATED: 1/10/2014 3:05 PM
DATE MODIFIED: 8/14/2016 1:19 PM

66. A right triangle has sides 10 m, 5 m, and 11 m. The smallest angle of this triangle is nearest
- 32°.
 - 27°.
 - 22°.
 - 63°.
 - Not attainable since this is not a right triangle.

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.8 Trigonometry Review
DATE CREATED: 6/23/2016 3:27 PM
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67. If $\phi = 90^\circ - \theta$, what is the value of $\sin^2 \phi + \sin^2 \theta$?
- 0
 - 1
 - 1
 - The answer depends on θ .

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.8 Trigonometry Review
DATE CREATED: 6/23/2016 3:27 PM
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68. A triangle has sides of length 7 cm and 11 cm. If the triangle is a right triangle, which of the following could be the length of the third side, to the nearest centimeter?

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- a. 11 cm
- b. 8 cm
- c. 16 cm
- d. 17 cm
- e. 7 cm

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.8 Trigonometry Review
DATE CREATED: 6/23/2016 3:27 PM
DATE MODIFIED: 8/2/2016 12:48 AM

69. A train slowly climbs a 400-m mountain track which is at an angle of 8.0° with respect to the horizontal. How much altitude does it gain?

- a. 55.7 m
- b. 200 m
- c. 60.7 m
- d. 396 m
- e. 400 m

ANSWER: a
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.8 Trigonometry Review
DATE CREATED: 6/23/2016 3:27 PM
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70. Consider the sine of any angle between 30° and 40° . If the angle were doubled, what would happen to the sine of the angle?

- a. It would double.
- b. It would more than double.
- c. It would increase but be less than double.
- d. In different cases, it could do any of the above.

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.8 Trigonometry Review
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71. Consider the cosine of any angle between 35° and 40° . If the angle were doubled, what would happen to the cosine of the angle.

- a. It would halve.
- b. It would decrease to less than half its original value.
- c. It would decrease but be more than half its original value.
- d. In different cases, it could do any of the above.

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.8 Trigonometry Review
DATE CREATED: 1/10/2014 3:05 PM
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72. If θ and ϕ are each first quadrant angles, which of the following must be true if $\sin \theta = \cos \phi$?

- a. $\theta + \phi = \pi$ rad
- b. $\theta + \phi = 90^\circ$
- c. $\theta - \phi = \pi/2$ rad
- d. $\theta = \phi$

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.8 Trigonometry Review
DATE CREATED: 1/10/2014 3:05 PM
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73. A high fountain of water is in the center of a circular pool of water. You walk the circumference of the pool and measure it to be 190 meters. You then stand at the edge of the pool and use a protractor to gauge the angle of elevation of the top of the fountain. It is 55° . How high is the fountain?

- a. 25 m
- b. 53 m
- c. 86 m
- d. 43 m
- e. 48 m

ANSWER: d
POINTS: 1
DIFFICULTY: 3
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.8 Trigonometry Review
DATE CREATED: 6/23/2016 3:27 PM
DATE MODIFIED: 1/6/2017 9:54 PM

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74. Which of the following is not a vector quantity?

- a. mass
- b. acceleration
- c. displacement
- d. velocity

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.9 Vectors
NOTES: New item
DATE CREATED: 8/17/2016 10:15 PM
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75. Which type of quantity is characterized by both magnitude and direction?

- a. scalar
- b. vector
- c. trigonometric
- d. algebraic variable

ANSWER: b
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.9 Vectors
DATE CREATED: 1/10/2014 11:11 AM
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76. Which of the following is an example of a vector quantity?

- a. velocity
- b. temperature
- c. volume
- d. mass

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.9 Vectors
DATE CREATED: 1/10/2014 11:11 AM
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77. When we subtract a velocity vector from another velocity vector, the result is

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- a. another velocity.
- b. an acceleration.
- c. a displacement.
- d. a scalar.

ANSWER: a
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.9 Vectors
DATE CREATED: 1/10/2014 11:11 AM
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78. When we add a displacement vector to another displacement vector, the result is

- a. a velocity.
- b. an acceleration.
- c. another displacement.
- d. a scalar.

ANSWER: c
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.9 Vectors
DATE CREATED: 1/10/2014 11:11 AM
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79. Vector $\vec{A}$ points north, and vector $\vec{B}$ points east. If $\vec{C} = \vec{B} - \vec{A}$, then vector $\vec{C}$ points

- a. north of east.
- b. south of east.
- c. north of west.
- d. south of west.

ANSWER: b
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.9 Vectors
DATE CREATED: 1/10/2014 11:11 AM
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80. When three vectors are added graphically and form a closed triangle, the largest enclosed angle between any two of the vectors cannot be greater than

- a. 60° .

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- b. 90° .
- c. 180° .
- d. No maximum exists.

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.9 Vectors
DATE CREATED: 1/10/2014 11:11 AM
DATE MODIFIED: 8/14/2016 1:23 PM

81. Vector $\vec{A}$ is 2 m long, and vector $\vec{B}$ is 5 m long. The length of the sum of the vectors must be

- a. 6 m.
- b. 7 m.
- c. 13 m.
- d. some value from 3 m to 7 m.
- e. 3 m.

ANSWER: d
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.9 Vectors
DATE CREATED: 1/10/2014 11:11 AM
DATE MODIFIED: 8/14/2016 1:24 PM

82. Two ships set sail from the same port. Ship A sails a distance of 35.0 kilometers in a direction 30.0° north of east, and drops anchor. Ship B sails due south. When ship B is 30.0 km from the port, how far apart are the ships?

- a. 46.1 km
- b. 56.3 km
- c. 65.0 km
- d. 75.9 km

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 1.10 Components of a Vector
NOTES: New item
DATE CREATED: 11/28/2016 10:24 PM
DATE MODIFIED: 12/29/2016 2:35 PM

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83. Terrence goes for a walk. He walks 2.0 km north, then turns and walks 4.0 km south of east. What is his displacement vector? Take east to be in the $+\hat{i}$ -direction and north to be in the $+\hat{j}$ -direction.

- a. $(2.0\hat{i} + 4.0\hat{j})$ km
- b. $(2.8\hat{i} - 0.8\hat{j})$ km
- c. $(4.8\hat{i} + 5.7\hat{j})$ km
- d. $(5.7\hat{i} - 2.8\hat{j})$ km

ANSWER: b
 POINTS: 1
 DIFFICULTY: 2
 QUESTION TYPE: Multiple Choice
 HAS VARIABLES: True
 TOPICS: 1.10 Components of a Vector
 NOTES: New item
 DATE CREATED: 11/28/2016 10:30 PM
 DATE MODIFIED: 1/19/2017 8:09 PM

84. Vector A is $2.0\hat{i} + 3.5\hat{j}$. Vector B is $-3.1\hat{i} - 3.1\hat{j}$. What is $A + 2B$?

- a. $-4.2\hat{i} + -2.7\hat{j}$
- b. $-1.1\hat{i} - 0.4\hat{j}$
- c. $5.1\hat{i} + 6.6\hat{j}$
- d. $8.2\hat{i} + 9.7\hat{j}$

ANSWER: a
 POINTS: 1
 DIFFICULTY: 2
 QUESTION TYPE: Multiple Choice
 HAS VARIABLES: True
 TOPICS: 1.10 Components of a Vector
 NOTES: New item
 DATE CREATED: 11/28/2016 10:47 PM
 DATE MODIFIED: 11/29/2016 11:59 AM

85. An airplane takes off due west at an angle of 16.0° with the horizontal. When the airplane is at a vertical height of 400 ft, what is its displacement vector? Let east be the $+x$ direction and $+z$ be upwards.

- a. $(385\hat{i} + 400\hat{k})$ ft
- b. $(-110\hat{i} - 400\hat{k})$ ft
- c. $(717\hat{i} - 400\hat{k})$ ft

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d. $(-1\,390 + 400) \text{ ft}$

ANSWER:	d
POINTS:	1
DIFFICULTY:	2
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	True
TOPICS:	1.10 Components of a Vector
NOTES:	New item
DATE CREATED:	11/29/2016 12:00 PM
DATE MODIFIED:	12/29/2016 2:37 PM

86. Vectors $\vec{A}$, $\vec{B}$, and $\vec{C}$ have magnitudes 6, 11, and 22. When these vectors are added, what is the least possible magnitude of their addition?

- a. 25 b. 15
c. 5 d. 3

ANSWER:	c
POINTS:	1
DIFFICULTY:	1
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.10 Components of a Vector
DATE CREATED:	1/10/2014 3:05 PM
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87. Of vectors with lengths 5 m, 3 m, and 4 m, which has the greatest magnitude x component?

- a. the one with length 5 m b. the one with length 3 m
c. the one with length 4 m d. It could be any of the three.

ANSWER:	d
POINTS:	1
DIFFICULTY:	1
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.10 Components of a Vector
DATE CREATED:	1/10/2014 3:05 PM
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88. Vector $\vec{\mathbf{A}}$ is 5 m long and vector $\vec{\mathbf{B}}$ is 12 m long. The length of the sum of the vectors must be:

- a. some value from 7 m to 17 m.
- b. 13 m.
- c. 17 m.
- d. 8 m.

ANSWER: a
POINTS: 1
DIFFICULTY: 1

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QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.10 Components of a Vector
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89. A taxicab moves five blocks due north, five blocks due east, and another three blocks due north. Assume all blocks are of equal size. How far is the taxi from its starting point?

- a. 13 blocks
- b. 9.4 blocks
- c. 9.2 blocks
- d. 8.6 blocks

ANSWER: b

POINTS: 1

DIFFICULTY: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

TOPICS: 1.10 Components of a Vector

DATE CREATED: 1/10/2014 3:05 PM

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90. Find the sum of the following two vectors: (i) 50 units due east and (ii) 100 units 30° south of west.

- a. 100 units 30° south of west
- b. 62 units 54° south of west
- c. 87 units 60° south of west
- d. 62 units 15° south of west

ANSWER: b

POINTS: 1

DIFFICULTY: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

TOPICS: 1.10 Components of a Vector

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91. Vector 1 is 7 units long and is at 70° . Vector 2 is 5 units long and is at 155° . Vector 3 is 3 units long and is at 225° . Which vector has equal-magnitude components?

- a. Vector 1
- b. Vector 2
- c. Vector 3
- d. None of the vectors has equal-magnitude components.

ANSWER: c

POINTS: 1

DIFFICULTY: 2

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

TOPICS: 1.10 Components of a Vector

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92. A student adds two vectors with magnitudes of 200 and 70. Which one of the following is the only possible choice for the magnitude of their sum?

- | | | | |
|----|-----|----|-----|
| a. | 100 | b. | 280 |
| c. | 200 | d. | 70 |

ANSWER:

c

POINTS:

1

DIFFICULTY:

2

QUESTION TYPE:

Multiple Choice

HAS VARIABLES:

False

TOPICS:

1.10 Components of a Vector

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93. Arvin the Ant travels 30 cm eastward, then 25 cm northward, and finally 10 cm westward. In what direction is Arvin now in with respect to his starting point?

- | | | | |
|----|------------|----|------------|
| a. | 59° N of E | b. | 29° N of E |
| c. | 29° N of W | d. | 51° N of E |

ANSWER:

d

POINTS:

1

DIFFICULTY:

2

QUESTION TYPE:

Multiple Choice

HAS VARIABLES:

False

TOPICS:

1.10 Components of a Vector

DATE CREATED:

1/10/2014 3:05 PM

DATE MODIFIED:

7/29/2016 1:14 PM

94. Vector $\vec{A}$ is 3.0 units in length and points along the positive x axis; vector $\vec{B}$ is 5.0 units in length and points along a direction 150° from the positive x axis. What is the magnitude of the resulting vector when vectors $\vec{A}$ and $\vec{B}$ are added?

- | | | | |
|----|-----|----|-----|
| a. | 7.0 | b. | 6.7 |
| c. | 2.8 | d. | 2.1 |

ANSWER:

c

POINTS:

1

DIFFICULTY:

2

QUESTION TYPE:

Multiple Choice

HAS VARIABLES:

False

TOPICS:

1.10 Components of a Vector

NOTES:

Revised item

DATE CREATED:

1/10/2014 3:05 PM

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12/16/2016 9:48 PM

95. Vector $\vec{A}$ is 3.00 units in length and points along the positive x axis; vector $\vec{B}$ is 5.00 units in length and points along a direction 150° from the positive x axis. What is the direction of their sum with respect to the positive x axis?

Chapter 01

- | | | | |
|----|-------|----|-------|
| a. | 62.0° | b. | 13.0° |
| c. | 118° | d. | 103° |

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.10 Components of a Vector
DATE CREATED: 1/10/2014 3:05 PM
DATE MODIFIED: 12/29/2016 2:38 PM

96. I walk six miles in a straight line in a direction north of east, and I end up four miles north and several miles east. How many degrees north of east have I walked?

- | | | | |
|----|-----|----|-----|
| a. | 19° | b. | 42° |
| c. | 60° | d. | 71° |

ANSWER: b
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 1.10 Components of a Vector
DATE CREATED: 1/10/2014 3:05 PM
DATE MODIFIED: 7/29/2016 1:15 PM

97. Note the expression: $y = x^2$. Which statement is most consistent with this expression?

- a. If y doubles, then x quadruples.
- b. y is greater than x .
- c. If x doubles, then y doubles.
- d. If x doubles, then y quadruples.

ANSWER: d
POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Additional Problems
DATE CREATED: 6/23/2016 3:27 PM
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98. 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 .

ANSWER: b

Chapter 01

POINTS: 1
DIFFICULTY: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Additional Problems
DATE CREATED: 6/23/2016 3:27 PM
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99. A circle has an area of 3.0 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. 0.8
- b. 2.0
- c. 4.0
- d. 6.0

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: Additional Problems
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100. Doubling the radius of a sphere results in increasing its volume by a factor of

- a. 2.
- b. 4.
- c. 8.
- d. 8π .

ANSWER: c
POINTS: 1
DIFFICULTY: 2
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: Additional Problems
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