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Isolating Quantities

1.c $= \frac{4b}{\sqrt[3]{d}}$

The formula above gives the capsize screening value, *c*, for a sailboat with a beam *b* feet long and that displaces *d* pounds of water. Higher capsize screening values suggest that a sailboat is more stable. Which of the following equations correctly gives the displacement in terms of the capsize screening value and the beam length?

A. d $= \frac{(4b)^3}{c}$

B.d $= \frac{c^3}{4b}$

C.d $= (\frac{4b}{c})^3$

D.d $= (\frac{c}{4b})^3$

2. $A = \frac{\pi r^2 \theta}{360}$

The above equation can be used to find the area, A, of a sector of a circle of radius, r, where θ is the sector's central angle in degrees. Which of the following correctly shows the circle sector's radius in terms of the area of the sector and the central angle?

A. $r = \sqrt{\frac{360A}{\pi\theta}}$

B. $r = \frac{360A}{\pi r\theta}$

C. $r = \sqrt{\frac{\pi\theta}{360A}}$

D. $r = \frac{\pi\theta}{360Ar}$

3.vrms = $\sqrt{\frac{3RT}{Mm}}$

The root-mean-square speed is the measure of the speed of particles in a gas. Root-mean-square speed, vrms, can be calculated using the equation shown above, where Mm is the molar mass of a gas, R is the molar gas constant, and T is the temperature. Which of the following equations correctly expresses the molar mass of a gas in terms of root-mean-square speed, temperature, and the molar gas constant?

A. Mm=$(\frac{3RT}{Vrms})^2$

B. Mm=$\frac{3RT}{(Vrms)^2}$

C. Mm=$\frac{Vrms^2}{3RT}$

D. Mm=$\frac{\sqrt{3RT}}{Vrms}$

4. $R=\frac{C-P}{P}$

To determine the value of a country's economy, a number called the Gross Domestic Product, or GDP is used. The current annual growth rate, R, can be determined from the current year's GDP,C, and the previous year's GDP, P, by using the following relationship. Which of the following correctly shows the previous year's GDP in terms of the growth rate and the current year's GDP?

A. $R=C-1$

B. $P=C-R-1$

C. $P=\frac{C}{R}+1$

D. $P=\frac{C}{R+1}$

5.t = $\frac{72}{b-d+m}$ The equation above gives the approximate doubling time in years, t, of the population of a country with a b percent annual increase due to births, a d percent annual decrease due to deaths, and a net migration of mm percent relative to the initial population over the course of a year. Which of the following equations correctly gives the net migration percent in terms of the doubling time, percent increase from births, and percent increase from deaths over the course of a year?

A. m=$\frac{72}{b-d+t}$

B. m=$\frac{72}{tb-td}$

C. m=$\frac{72}{t}$-b+d

D. m=$\frac{72-b+d}{t}$

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Thanks

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