MEEG 2003 Quiz #1.m02.073

1. Round the following numbers to *two* significant digits: ②
(a) 2 450 000, *(b)* 61.500, *(c)* 0.00072500, *(d)* 42.501

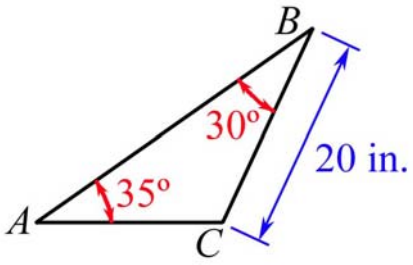

Fig. P2

$$D = \begin{vmatrix} 5 & -7 & 9 \\ 4 & 0 & -2 \\ 6 & -4 & 1 \end{vmatrix}$$

2. Determine the length of side $\overline{AB}$ of the triangle shown. ②

3. Compute the value of the determinant D shown. ②

4. Describe the dimension *time*. ②

5. Describe the difference between *kinematics* and *kinetics*. ②

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1. *(a)* 2.4×10^{6}, *(b)* 62, *(c)* 7.2×10^{-4}, *(d)* 43.

2. $\angle C = 180° - 35° - 30° = 115°$ $\quad \dfrac{\overline{AB}}{\sin 115°} = \dfrac{20}{\sin 35°}$ $\quad \therefore\ \overline{AB} = 31.6$ in.

3. $D = -4\begin{vmatrix} -7 & 9 \\ -4 & 1 \end{vmatrix} - (-2)\begin{vmatrix} 5 & -7 \\ 6 & -4 \end{vmatrix} = -4(-7+36) + 2(-20+42)$ $\quad \therefore\ D = -72$

4. The dimension *time* is a concept for ordering the flow, or for measuring the duration, of events.

5. *Kinematics* is the part of dynamics dealing with the study of motion of bodies without considering the cause of motion. *Kinetics* is the part of dynamics relating the motion of a body to the force system causing the motion; it usually contains some kinematics.