

Date: _____

Today's Learning Goal(s):

By the end of the class, I will be able:

- a) prepared for the Unit 5 Summative Tuesday.

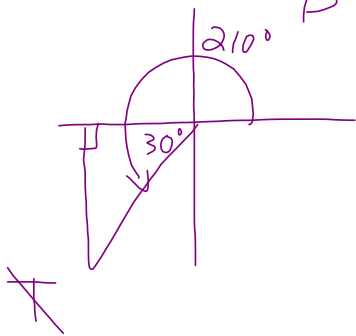
Last day's work: pp. 332-335 #3 – 6 [7, 14]

5
4a
3a c
6

Warm-up:

$$\cos 210^\circ \quad \alpha = 30^\circ$$

$$\beta = 30^\circ$$



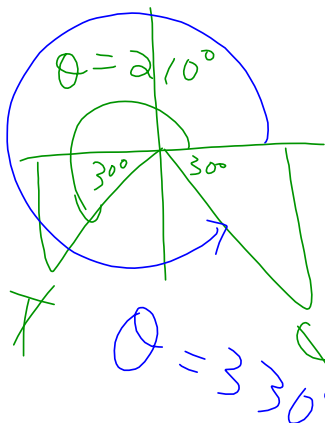
$$\cos 210^\circ = -\cos 30^\circ$$

$$= -\frac{\sqrt{3}}{2}$$

$$\sin A = -\frac{1}{2}$$

$$\alpha = 30^\circ$$

$$\sin 30^\circ = \frac{1}{2}$$



$$\therefore A = 210^\circ \text{ or } 330^\circ$$

$$0^\circ \leq A \leq 360^\circ$$

Determine the measure of $\angle A$.

$$\csc A = -0.5$$

$$\frac{1}{\sin A} = -\frac{1}{2}$$

$$\sin A = -2$$

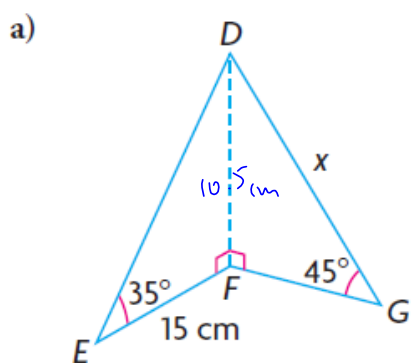
$$A = \sin^{-1}(-2)$$

Not possible

$$\sin A = x$$

$$0 \leq x \leq 1$$

p. 332 #3

3. Determine the value of x to the nearest centimetre and θ to the nearest**K** degree. Explain your reasoning for each step of your solution.

$$\frac{DF}{EF} = \tan 35^\circ$$

$$DF = EF \tan 35^\circ$$

$$= 15 \tan 35^\circ$$

$$\approx 10.50 \text{ cm}$$

$$\sin 45^\circ = \frac{10.5}{x}$$

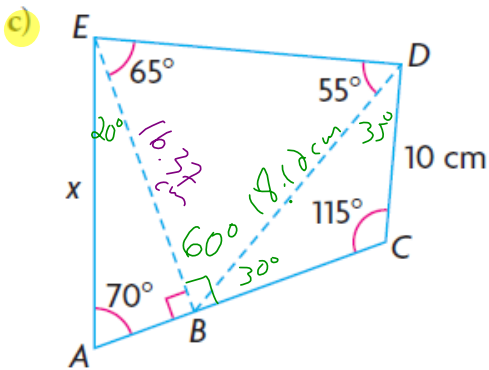
$$x = \frac{10.5}{\sin 45^\circ}$$

$$\approx 14.8$$

$$\approx 15 \text{ cm}$$

p. 332 #3

3. Determine the value of x to the nearest centimetre and θ to the nearest degree. Explain your reasoning for each step of your solution.



$$\sin 70^\circ = \frac{EB}{x}$$

$$\sin 70^\circ = \frac{16.37}{x}$$

$$x = \frac{16.37}{\sin 70^\circ}$$

$$= 17.40$$

$$= 17 \text{ cm}$$

$$\frac{BD}{\sin 115^\circ} = \frac{10}{\sin 30^\circ}$$

$$BD = \sin 115^\circ \times \frac{10}{\sin 30^\circ}$$

$$= 18.12 \text{ cm}$$

$$\frac{EB}{\sin 55^\circ} = \frac{18.12}{\sin 65^\circ}$$

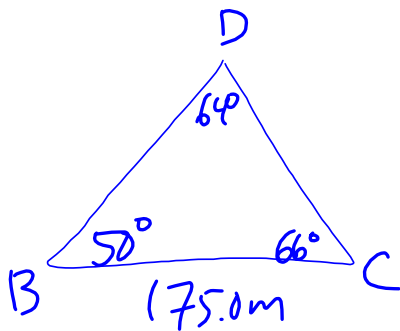
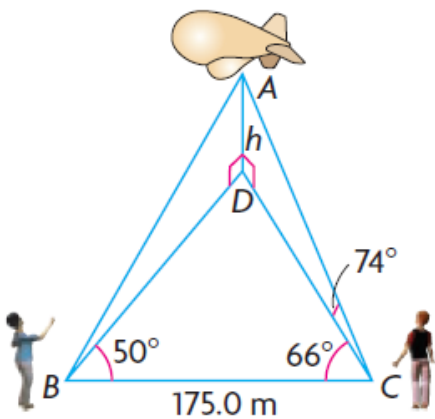
$$EB = \sin 55^\circ \times \frac{18.12}{\sin 65^\circ}$$

$$= 16.37 \text{ cm}$$

p. 332 #4

4. As a project, a group of students was asked to determine the altitude, h , of a promotional blimp. The students' measurements are shown in the sketch at the left.

- Determine h to the nearest tenth of a metre. Explain each of your steps.
- Is there another way to solve this problem? Explain.



$$\frac{DC}{\sin 50^\circ} = \frac{175.0}{\sin 64^\circ}$$

$$DC = \sin 50^\circ \times \frac{175.0}{\sin 64^\circ}$$

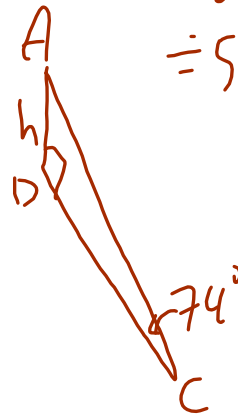
$$= 149.15$$

$$\tan 74^\circ = \frac{h}{DC}$$

$$h = 149.15 \tan 74^\circ$$

$$= 520.15$$

$$= 520.2 \text{ m}$$



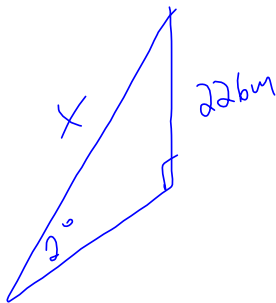
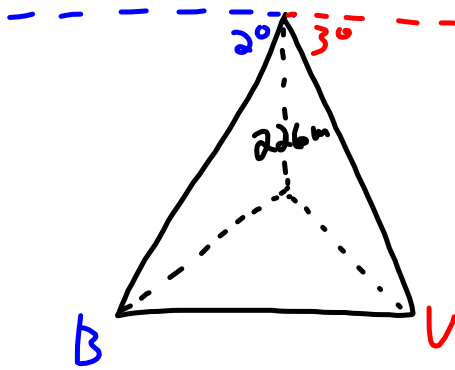
p. 333

5. While Travis and Bob were flying a hot-air balloon from Beamsville to Vineland in southwestern Ontario, they decided to calculate the straight-line distance, to the nearest metre, between the two towns.

- From an altitude of 226 m, they simultaneously measured the angle of depression to Beamsville as 2° and to Vineland as 3° .
- They measured the angle between the lines of sight to the two towns as 80° .

Is there enough information to calculate the distance between the two towns? Justify your reasoning with calculations.

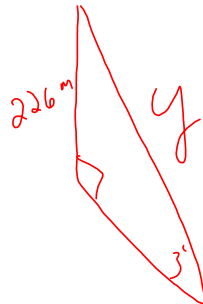
Please remind me to explain why my answer differs from the textbook and solution manual, which are incorrect.



$$\sin 2^\circ = \frac{226}{x}$$

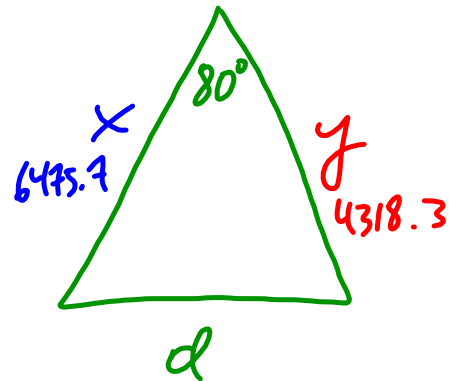
$$x = \frac{226}{\sin 2^\circ}$$

$$= 6475.7$$



$$y = \frac{226}{\sin 3^\circ}$$

$$= 4318.3$$



$$d^2 = 6475.7^2 + 4318.3^2 - 2(6475.7)(4318.3)\cos 80^\circ$$

$$d = 7132.36$$

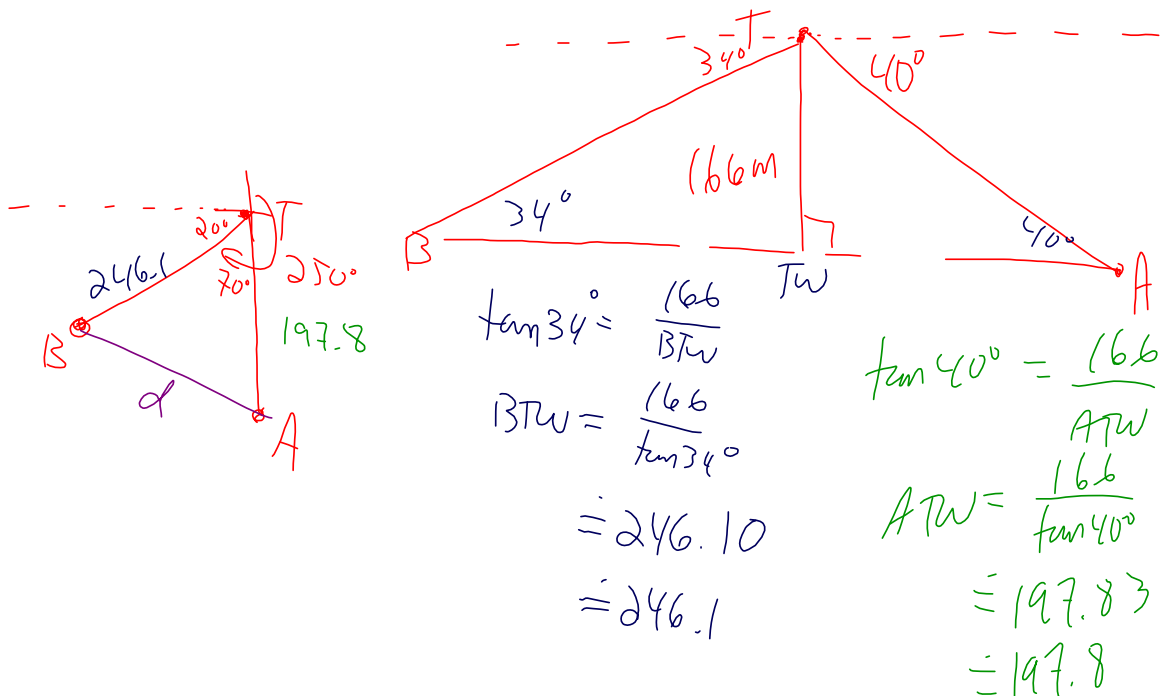
$$\approx 7133 \text{ m}$$

p. 333

6. The observation deck of the Skylon Tower in Niagara Falls, Ontario, is
A 166 m above the Niagara River. A tourist in the observation deck notices two boats on the water. From the tourist's position,

- the bearing of boat A is 180° at an angle of depression of 40°
- the bearing of boat B is 250° at an angle of depression of 34°

Calculate the distance between the two boats to the nearest metre.



$$d^2 = 246.1^2 + 197.8^2 - 2(246.1)(197.8)\cos 70^\circ$$

$$d \approx 257.6$$

$$\approx 258 \text{ m}$$

5.R Unit 5 Review Redo Quiz 5.1Date: NOV. 20 / 19

- 5.1 Trig Raos of Acute Angles (**6** Trig Raos)
- 5.2 Trig Raos of Special Angles (**Exact** Values)
- 5.3 Trig Raos of Obtuse Angles (Angles in Standard Posion)
- 5.4 **CAST** Rule & Related Acute Angles (RAA; **β** vs **θ**)
- 5.4 Evaluang Trigonometric Raos for $0^\circ \leq \theta \leq 360^\circ$ (**Both** answers)
- 5.6 The Sine Law (& **Ambiguous** Case)
- 5.7 The Cosine Law
- 5.8 Solving 3-Dimensional Problems Using Trigonometry

Are there any Homework Questions you would like to see on the board?

Last day's work: pp. 332-335 #3 – 6 [7, 14]

Today's Homework Practice includes:

pp. 338-339 #1 – 5, 8 – 13

p. 340 #2