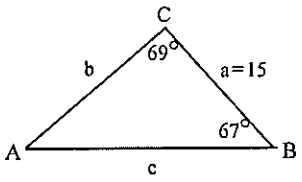
Student: _____ **Date:** _____	**Instructor:** Joe Betters **Course:** Pre-Calculus Pre AP (Master Course)	**Assignment:** 8.2 Classwork Day 2

1. Solve the triangle.



A = _____ ° (Round to the nearest degree as needed.)

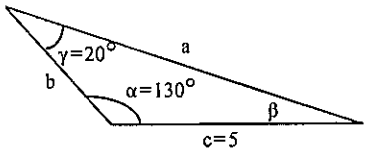
b ≈ _____
(Do not round until the final answer. Then round to the nearest hundredth as needed.)

c ≈ _____
(Do not round until the final answer. Then round to the nearest hundredth as needed.)

ID: 8.2.11

2. Solve the following triangle.

$\alpha = 130°, \quad \gamma = 20°, \quad c = 5$



β = _____ ° (Round to the nearest degree as needed.)

a ≈ _____ (Round to two decimal places as needed.)

b ≈ _____ (Round to two decimal places as needed.)

ID: 8.2.15

3. Solve the triangle.

$A = 110°, \quad C = 40°, \quad c = 6$

Determine the value of B.

B = _____ °
(Round to the nearest whole number as needed.)

Determine the value of a.

a = _____
(Round to two decimal places as needed.)

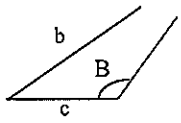
Determine the value of b.

b = _____
(Round to two decimal places as needed.)

ID: 8.2.21

4. Two sides and an angle are given below. Determine whether the given information results in one triangle, two triangles, or no triangle at all. Solve any triangle(s) that results.

$b = 9, \quad c = 8, \quad B = 170^\circ$



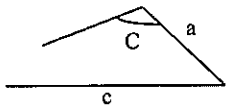
Select the correct choice below and, if necessary, fill in the answer boxes to complete your choice.
(Type an integer or decimal rounded to two decimal places as needed.)

- ○ **A.** A single triangle is produced, where $C \approx$ _____, $A \approx$ _____, and $a \approx$ _____.
- ○ **B.** Two triangles are produced, where the triangle with the smaller angle C has $C_1 \approx$ _____°, $A_1 \approx$ _____°, and $a_1 \approx$ _____, and the triangle with the larger angle C has $C_2 \approx$ _____°, $A_2 \approx$ _____°, and $a_2 \approx$ _____.
- ○ **C.** No triangles are produced.

ID: 8.2.27

5. Two sides and an angle are given below. Determine whether the given information results in one triangle, two triangles, or no triangle at all. Solve any triangle(s) that results.

$a = 4, \quad c = 5, \quad C = 120^\circ$

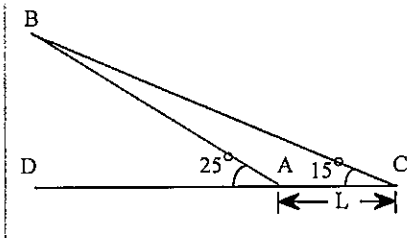


Select the correct choice below and, if necessary, fill in the answer boxes to complete your choice.
(Type an integer or decimal rounded to two decimal places as needed.)

- ○ **A.** A single triangle is produced, where $A \approx$ _____°, $B \approx$ _____°, and $b \approx$ _____.
- ○ **B.** Two triangles are produced, where the triangle with the smaller angle A has $A_1 \approx$ _____°, $B_1 \approx$ _____°, and $b_1 \approx$ _____, and the triangle with the larger angle A has $A_2 \approx$ _____°, $B_2 \approx$ _____°, and $b_2 \approx$ _____.
- ○ **C.** No triangles are produced.

ID: 8.2.35

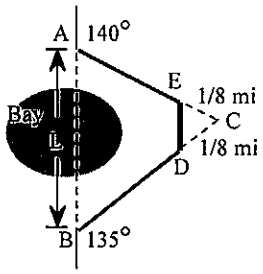
6. Consult the figure. To find the length of the span of a proposed ski lift from A to B, a surveyor measures the angle DAB to be 25° and then walks off a distance of L = 1750 feet to C and measures the angle ACB to be 15°. What is the distance from A to B?



The distance from A to B is approximately _____ feet.
(Do not round until the final answer. Then round to two decimal places as needed.)

ID: 8.2.39

7. A highway whose primary directions are north/south is being constructed along the west coast of a region. At one point, a bay obstructs the straight path of the road. Since the cost of a bridge is prohibitive, engineers decide to go around the bay. The figure shows a diagram of the path that they decide on and the measurements taken. If L = 3 mi, what is the length of highway needed to go around the bay?



The total length of the highway needed to go around the bay is about _____ miles.
(Do not round until the final answer. Then round to two decimal places as needed.)

ID: 8.2.49

1. 44

   19.88

   20.16

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2. 30

   11.20

   7.31

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3. 30

   8.77

   4.67

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4. A. A single triangle is produced, where C ≈ **8.88**, A ≈ **1.12**, and a ≈ **1.01**.

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5. A. A single triangle is produced, where A ≈ **43.85** °, B ≈ **16.15** °, and b ≈ **1.61**.

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6. 2608.34

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7. 4.00

8.2 cw day 2

① $A = 180 - 67 - 69 = \boxed{44^\circ}$

$$\frac{\sin 44}{15} = \frac{\sin 67}{b} \qquad \boxed{b = 19.88}$$

$$\frac{\sin 44}{15} = \frac{\sin 69}{c} \qquad \boxed{c = 20.16}$$

② $B = 180 - 130 - 20 = \boxed{B = 30}$

$$\frac{\sin 130}{a} = \frac{\sin 20}{5} = \boxed{a = 11.20}$$

$$\frac{\sin 20}{5} = \frac{\sin 30}{b} \qquad \boxed{b = 7.31}$$

8.2 cw day 2

③ $B = 180 - 110 - 40$ $\quad B = 30^\circ$

$\frac{\sin 110}{a} = \frac{\sin 40}{6}$ $\quad a = 8.77$

$\frac{\sin 30}{b} = \frac{\sin 40}{6}$ $\quad b = 4.67$

④ $\frac{\sin C}{8} = \frac{\sin 170}{9}$ $\quad C = 8.88^\circ$

$180 - 170 - 8.88$ $\quad A = 1.12^\circ$

$\frac{\sin 1.12}{a} = \frac{\sin 170}{9}$ $\quad a = 1.01$

$180 - 8.88 = 171.12$

$+170 \longrightarrow B$

over 180°

only 1 Δ

8.2 cw day 2

⑤

$$\frac{\sin A}{4} = \frac{\sin 120}{5}$$

$A = 43.85^\circ$

$180 - 120 - 43.85 = B$

$B = 16.15^\circ$

$$\frac{\sin 16.15}{b} = \frac{\sin 120}{5}$$

$b = 1.61$

$180 - 43.85 = 136.15$

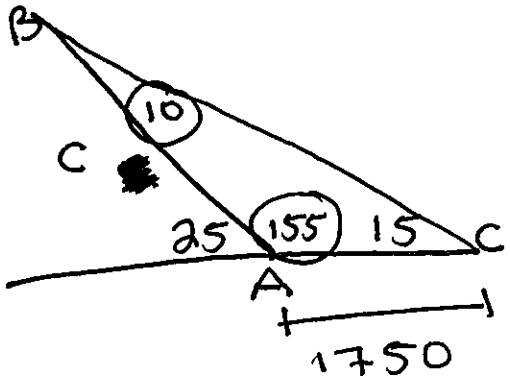
$136.15 + 120 \longrightarrow C$

over 180°

so only 1 Δ

8.2 cw day 2

(6)



$180 - 25 = \underline{155}^\circ$

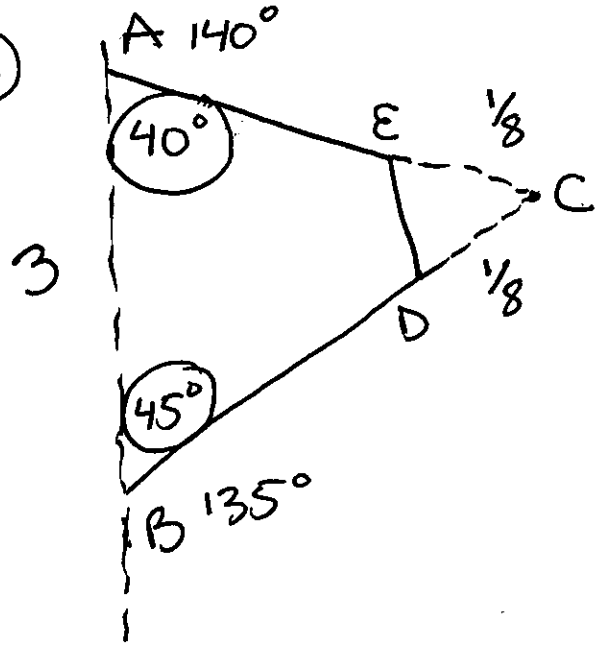
$180 - 155 - 15 = \underline{10}^\circ$

$$\frac{\sin 10}{1750} = \frac{\sin 15}{C}$$

$C = 2608.34$

8.2 day 2 cw

(7)



$180 - 140 = \underline{40}^\circ$

$180 - 135 = \underline{45}^\circ$

$180 - 40 - 45 = \boxed{95^\circ = C}$

$\frac{\sin 95}{3} = \frac{\sin 40}{\overline{BC}}$ $\quad \overline{BC} = 1.9357$

$\overline{BD} = 1.9357 - .125 = 1.81$

$\overline{CD}$

$\frac{\sin 95}{3} = \frac{\sin 45}{\overline{AC}}$ $\quad \overline{AC} = 2.13$

$\overline{AE} = 2.13 - .125 = 2.01$

$\frac{\sin 95}{\overline{ED}} = \frac{\sin 42.5}{1/8}$ $\quad \overline{ED} = .18$

$2.01 + .18 + 1.81 = \boxed{4}$