

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

Trigonometry: Solving Triangles Review

*Directions: Use the information given for triangle ABC to solve for all missing pieces.*

1.  $A = 32^\circ; B = 70^\circ; a = 3.8 \text{ in}$

8.  $A = 26^\circ; a = 4.8 \text{ ft}; b = 9.4 \text{ ft}$

2.  $B = 118^\circ; C = 37^\circ; c = 2.9 \text{ in}$

9.  $C = 60^\circ; a = 10 \text{ cm}; b = 12 \text{ cm}$

3.  $A = 38.2^\circ; B = 63.4^\circ; c = 42 \text{ cm}$

10.  $C = 120^\circ; a = 10 \text{ cm}; b = 12 \text{ cm}$

4.  $A = 24.7^\circ; C = 106.1^\circ; b = 34 \text{ cm}$

11.  $a = 5 \text{ km}; b = 7 \text{ km}; c = 9 \text{ km}$

5.  $A = 60^\circ; a = 12 \text{ in}; b = 42 \text{ in}$

12.  $a = 10 \text{ km}; b = 12 \text{ km}; c = 11 \text{ km}$

6.  $A = 42^\circ; a = 29 \text{ in}; b = 21 \text{ in}$

13.  $C = 119^\circ; a = 6.4 \text{ m}; b = 2.8 \text{ m}$

7.  $A = 51^\circ; a = 6.5 \text{ ft}; b = 7.9 \text{ ft}$

14. Find the area for triangles in #3, 4, 9, 10, 11, and 12.

Things to memorize/important tips: Law of Sines, Law of Cosines, flow chart/excel spreadsheet explaining the different steps, Heron's Formula, if you use the Law of Cosines once use it twice, always find the third angle when given two angles.

It would be a good idea to read through the notes that we did in class in addition to doing this review sheet. The test is worth 100 points.

Key: SOGA = Side Opposite the Given Angle.

①  $A = 32^\circ$   $a = 3.8$   
 $B = 70^\circ$   $b = 6.7$   
 $C = 78^\circ$   $c = 7.0$

- 1) Find  $C$  (Angle)
- 2) Use Law of Sines

②  $A = 25^\circ$   $a =$   
 $B = 118^\circ$   $b =$   
 $C = 37^\circ$   $c = 2.9$

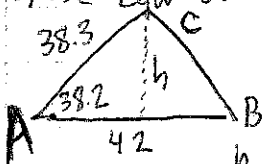
- 1) Find Angle  $A$ .
- 2) Use Law of Sines

③  $A = 38.2^\circ$   $a = 26.5$   
 $B = 63.4^\circ$   $b = 38.3$   
 $C = 78.4^\circ$   $c = 42$

Area = 497.9

- 1) Find Angle  $C$
- 2) Use Law of Sines

Use Heron's  
or



$\sin 38.2 = \frac{h}{38.3}$

Area =  $\frac{1}{2} \cdot b \cdot h$

④  $A = 24.7^\circ$   $a = 18.8$   
 $B = 49.2^\circ$   $b = 34$   
 $C = 106.1^\circ$   $c = 43.1$

Area = 306.5

- 1) Find Angle  $B$
- 2) Use Law of Sines

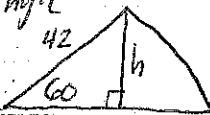
⑤ No Solutions  
 ASS (Ambiguous Case)

- 1) Given Angle Acute.

- 2) Side Opp. Given Angle is shorter.

- 3) Find height

- 4)  $h > \text{SOGA} \rightarrow$  No Sol.



⑥  $A = 42^\circ$   $a = 29$   
 $B = 29.0^\circ$   $b = 21$   
 $C = 109.0^\circ$   $c = 41.0$

- 1) Given Angle is Acute
- 2) SOGA > otherside.
- 3) 1 possible  $\Delta$

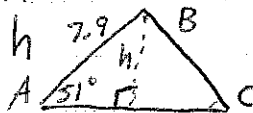
⑦  $A = 51^\circ$   $a = 6.5$   
 $B = 70.8^\circ$   $b = 7.9$   
 $C = 58.1^\circ$   $c = 7.1$

OR

$A = 51^\circ$   $a = 6.5$   
 $B = 109.1^\circ$   $b = 7.9$   
 $C = 19.8^\circ$   $c = 2.8$

ASS case

- 1) Given Angle Acute.
- 2) SOGA < otherside
- 3) Find  $h$



- 4) SOGA > h  $\rightarrow$  2  $\Delta$

⑧  $A = 26^\circ$   $a = 4.8$   
 $B = 59.1^\circ$   $b = 9.4$   
 $C = 94.9^\circ$   $c = 10.9$

OR

$A = 26^\circ$   $a = 4.8$   
 $B = 120.9^\circ$   $b = 9.4$   
 $C = 33.1^\circ$   $c = 6.0$

- 1) Given Angle Acute
- 2) SOGA < otherside.

- 3) Find  $h$

- 4) SOGA > h

- 5) 2 poss.  $\Delta$ 's

- 6) Use Law of Sines. Notice

there are 2 answers.

⑨  $A = 51.0^\circ$   $a = 10$   
 $B = 68.9^\circ$   $b = 12$   
 $C = 60^\circ$   $c = 11.1$

Area = 52.0

SAS Case

- 1) Use Law of Cosines to Find  $c$  (side)
- 2) Use Law of Cosines to Find  $A$  (or  $B$ ).
- 3)  $B = 180 - A - C$

⑩  $A = 27.0^\circ$   $a = 10$  Area = 52.0  
 $B = 33.0^\circ$   $b = 12$   
 $C = 120^\circ$   $c = 19.1$

- 1) Use Law of Cosines to Find  $c$  (side)
- 2) Use Law of Cosines to find  $A$  (or  $B$ )

- 3)  $B = 180 - A - C$

⑪  $A = 33.6^\circ$   $a = 5$  Area = 17.4  
 $B = 50.7^\circ$   $b = 7$   
 $C = 95.7^\circ$   $c = 9$

- 1) Use Law of Cosines twice
- 2) You can use Law of Sines for 3

⑫  $A = 51.3^\circ$   $a = 10$  Area = 51.5  
 $B = 69.5^\circ$   $b = 12$   
 $C = 59.1^\circ$   $c = 11$

- 1) See ⑪ SSS

⑬  $A = 43.5^\circ$   $a = 6.4$  Area = 7.8  
 $B = 17.5^\circ$   $b = 28$   
 $C = 119^\circ$   $c = 8.1$

- ① SAS Law of Cosines to find side  $c$ .

- ② Law of Cosines for  $A$ .

- ③  $B = 180 - C - A$ .