

# The Law of Sines

Lesson 25

11.13.15

Section 5.6

Warm-up

$$1) \sin 45 =$$

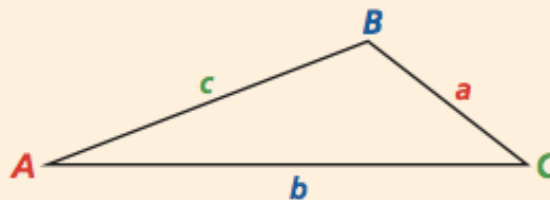
$$2) \cot 60 =$$

$$3) \sin 26 =$$

## Law of Sines

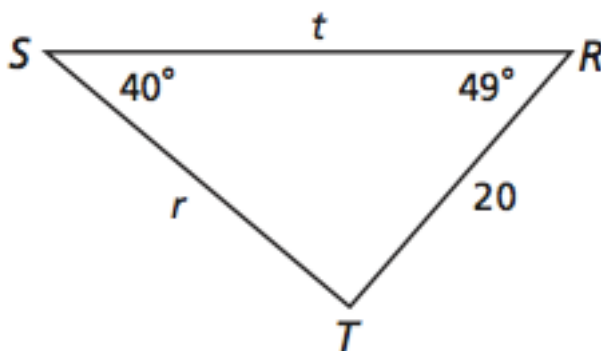
For  $\triangle ABC$ , the Law of Sines states that

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$



You need either ASA, AAS, or SSA to be able to use the Law of Sines

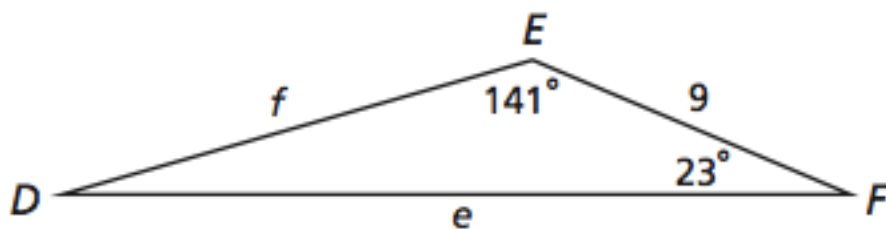
I try:  
Solve for the triangle.



|                             |  |
|-----------------------------|--|
| Identify the givens.        | $40^\circ \rightarrow$ side 20<br>$49^\circ \rightarrow$ side r                        |
| Plug into the Law of Sines  | $\frac{\sin 40^\circ}{20} = \frac{\sin 49^\circ}{r}$                                   |
| Simplify                    | $r \sin 40^\circ = 20 \sin 49^\circ$ $r(.643) = 20(.755)$ $r(.643) = 15.1$ $r = 23.48$ |
| Solve for the missing parts | $T =$<br><br>$t =$   |

|  |  |
|--|--|
|  |  |
|--|--|

We Try:



|                             |  |
|-----------------------------|--|
| Identify the givens.        |  |
| Plug into the Law of Sines  |  |
| Simplify                    |  |
| Solve for the missing sides |  |

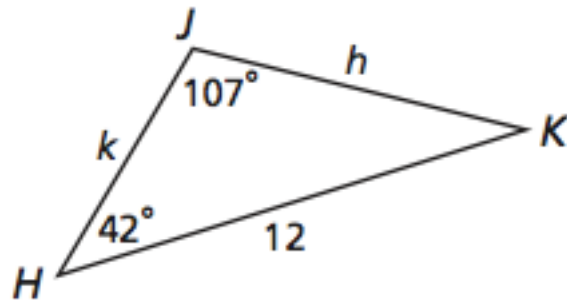
We Try:

Given  $a=5, B = 37^\circ, C = 84^\circ$

*solve for the triangle.*

|                             |  |
|-----------------------------|--|
| Identify the givens.        |  |
| Plug into the Law of Sines  |  |
| Simplify                    |  |
| Solve for the missing sides |  |

You Try on whiteboards:  
Left Talk, Right Write



|                            |  |
|----------------------------|--|
| Identify the givens.       |  |
| Plug into the Law of Sines |  |
| Simplify                   |  |

You Try SOLO:  
Given  $A=15^\circ, B = 113^\circ, b = 7$   
*solve for the triangle.*

|                             |  |
|-----------------------------|--|
| Identify the givens.        |  |
| Plug into the Law of Sines  |  |
| Simplify                    |  |
| Solve for the missing sides |  |

Exit slip:

Solve for the triangle.

Given:  $a = 19.2$ ,  $A = 53.8^\circ$ ,  $C = 65.4^\circ$