

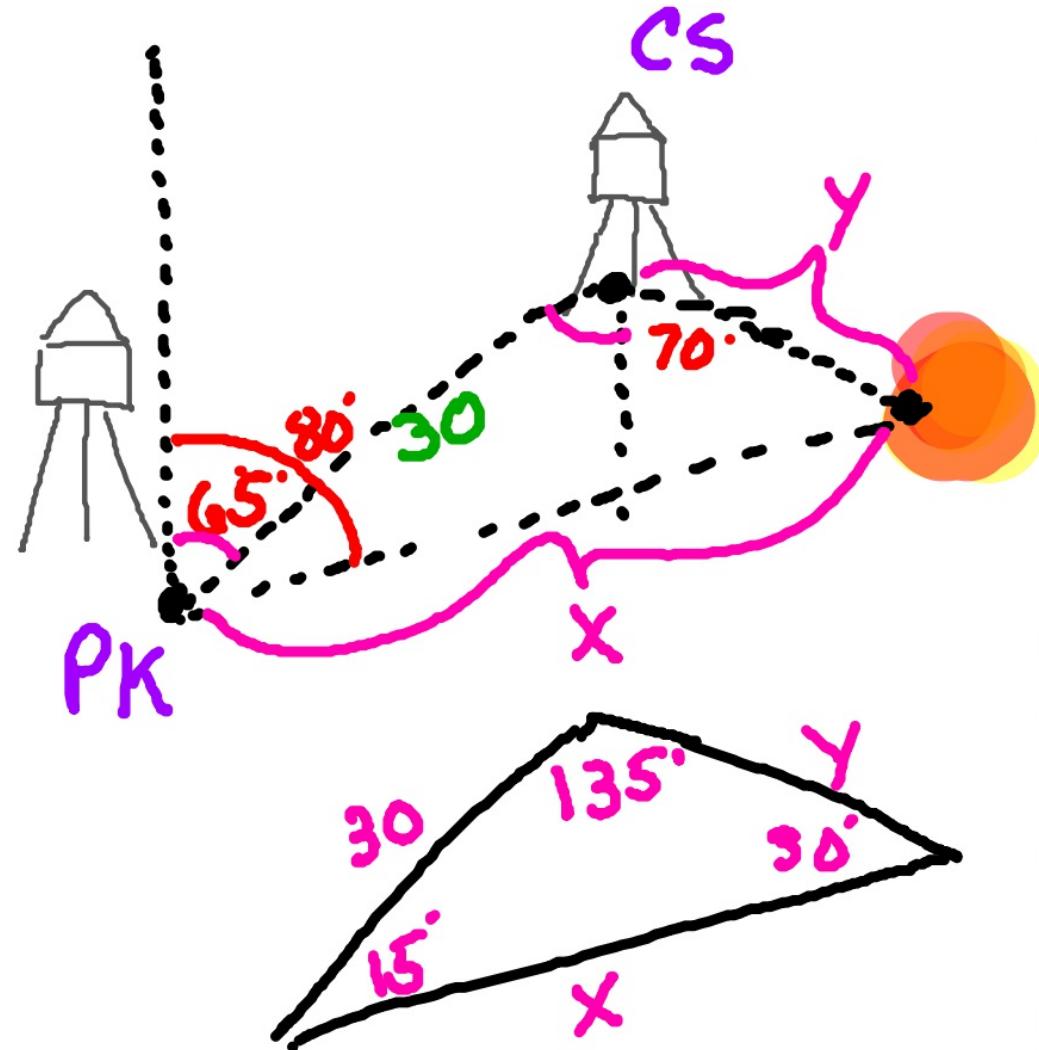
WARMUP

• PG 436 # 42

65°
15°

$$i = \frac{\sin 15}{Y}$$

$$i = \frac{\sin 135}{X}$$



LAW OF COSINES

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- Used to solve for the missing parts of non-right triangles

$$a^2 = b^2 + c^2 - 2bc \cdot \cos A$$

$$b^2 = a^2 + c^2 - 2ac \cdot \cos B$$

$$c^2 = a^2 + b^2 - 2ab \cdot \cos C$$

EXAMPLES

$$1.) \quad a = 8 \quad b^2 = a^2 + c^2 - 2ac \cdot \cos B$$

$$b = 19 \quad 19^2 = 8^2 + 14^2 - 2 \cdot 8 \cdot 14 \cdot \cos B$$

$$c = 14$$

$$\cancel{\triangle A = 22.08^\circ}$$

$$\cancel{\triangle B = 116.8^\circ}$$

$$\cancel{\triangle C = 41.12^\circ}$$

$$361 = 64 + 196 - 2 \cdot 8 \cdot 14 \cos B$$

$$361 = 260 - 224 \cos B$$

$$101 = - 224 \cos B$$

$$\boxed{ } = \cos B$$

$$\cancel{\triangle B} = 116.80$$

$$\frac{\sin 116.8}{19} = \frac{\sin A}{8}$$

$$\cancel{\triangle A = 22.08}$$

EXAMPLES

2.) $\angle A = 115^\circ$ $\angle B = 39.75^\circ$
 $b = 15$ $\angle C = 25.25^\circ$
 $c = 10$ $a = 21.26$

$$a^2 = b^2 + c^2 - 2bc \cdot \cos A$$
$$a^2 = 15^2 + 10^2 - 2 \cdot 15 \cdot 10 \cdot \cos 115^\circ$$
$$\frac{\sin 115^\circ}{21.26} = \frac{\sin B}{15}$$

$$a^2 = 325 - 300 \cos 115^\circ$$

$$\sqrt{a^2}$$

$$a = 21.26$$

SOLVING TRIANGLES

SohCahToa



Law of Sines



Law of Cosines



Right Triangles

AAS, SSA, ASA

SAS, SSS

Method

Types of triangles

CLASSWORK

- Pg 443 # 1-9 odd, 31, 34, 36

HOMEWORK

- Pg 443 # 2-10 even