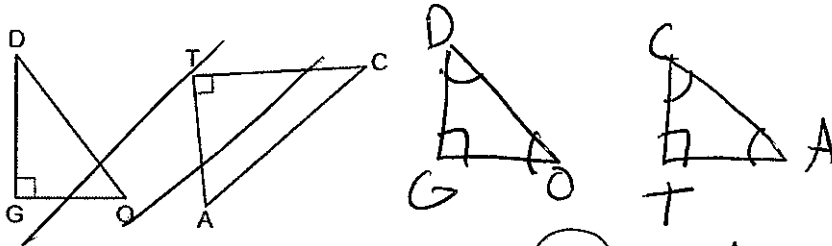


Trigonometry with Similar Triangles

Draw your own triangles separately!

Match up the corresponding angles and apply trigonometry rules from there.

1. In the diagram below, $\triangle DOG \sim \triangle CAT$, where $\angle G$ and $\angle T$ are right angles.



Which expression is always equivalent to $\sin D$?

- 1) $\cos A$
- 2) $\sin A$

$\sin A = \cos B$

- 3) $\tan A$
- 4) $\cos C$

$\cos O = \cos A$

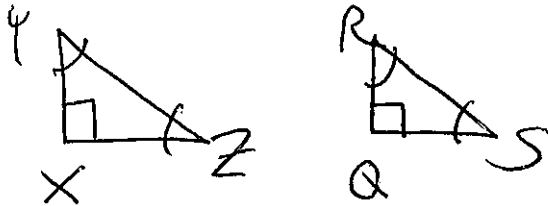
2. If scalene triangle XYZ is similar to triangle QRS and $m\angle Y = 90^\circ$, which equation is always true?

- 1) $\sin Y = \sin S$
- 2) $\cos R = \cos Z$

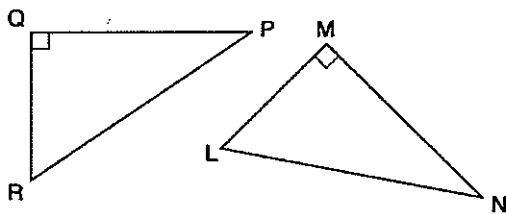
$\sin A = \cos B$

- 3) $\cos Y = \sin Q$
- 4) $\sin R = \cos Z$

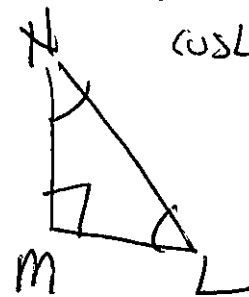
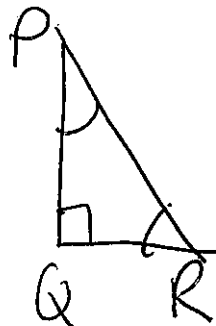
$\sin Y =$



3. In the diagram below, right triangle PQR is transformed by a sequence of rigid motions that maps it onto right triangle NML . What ratio is equal to $\cos L$?



- 1) $\sin R$
- 2) $\cos R$
- 3) $\sin P$
- 4) $\cos P$



$\sin A = \cos B$

$\cos L = \sin N$
 \downarrow
 $\sin P$

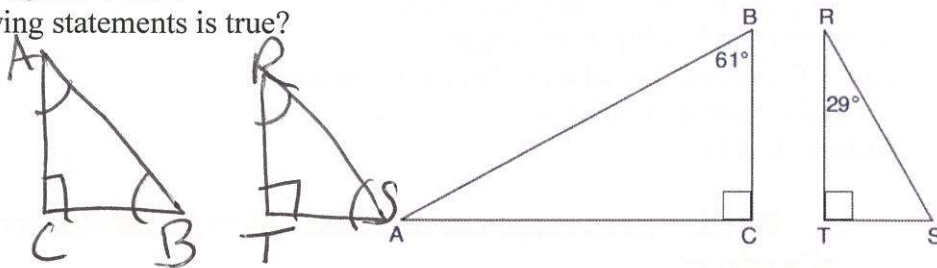
S A C H T A

4. Given right triangle ABC with a right angle at C , $m\angle B = 61^\circ$. Given right triangle RST with a right angle at T , $m\angle R = 29^\circ$.

Which of the following statements is true?

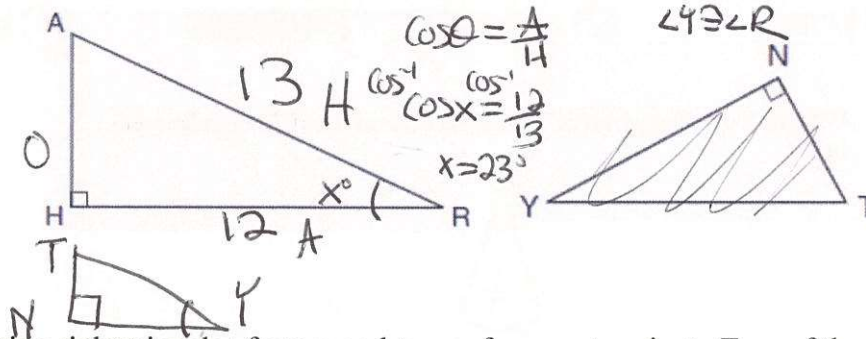
- 1) $\sin A = \cos C$
- 2) $\sin B = \cos R$
- 3) $\sin S = \cos B$
- 4) $\sin C = \cos T$

$\sin B = \cos A$
 \downarrow
 $\cos R$



5. In the diagram below of $\triangle HAR$ and $\triangle NTY$, angles H and N are right angles, and $\triangle HAR \sim \triangle NTY$. If $AR = 13$ and $HR = 12$, what is the measure of angle Y , to the nearest degree?

- 1) 23°
- 2) 25°
- 3) 65°
- 4) 67°

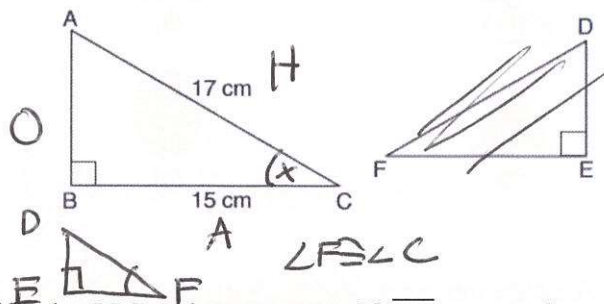


6. Kayla was cutting right triangles from wood to use for an art project. Two of the right triangles she cut are shown below.

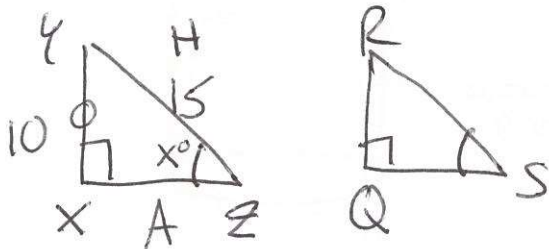
If $\triangle ABC \sim \triangle DEF$, with right angles B and E , $BC = 15$ cm, and $AC = 17$ cm, what is the measure of $\angle F$, to the nearest degree?

- 1) 28°
- 2) 41°
- 3) 62°
- 4) 88°

$\cos \theta = \frac{15}{17}$
 $\cos^{-1}(\frac{15}{17}) = x$
 $x = 28^\circ$



1. Scalene triangle XYZ is similar to triangle QRS and $m\angle X = 90^\circ$. If $\overline{XY} = 10$ and $\overline{ZY} = 15$, find the measure of $\angle S$ to the nearest tenth of a degree.



$\sin \theta = \frac{10}{15}$
 $\sin^{-1}(\frac{10}{15}) = x$

$x = \sin^{-1}(\frac{10}{15})$

$x = 41.8^\circ$