Name _____   Date _____
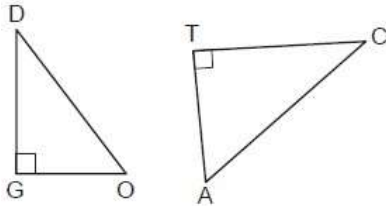Mr. Schlansky   Geometry

Trigonometry with Similar Triangles

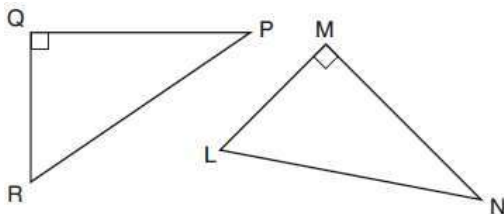1. In the diagram below, $\triangle DOG \sim \triangle CAT$, where $\angle G$ and $\angle T$ are right angles.

Which expression is always equivalent to $\sin D$?
1) $\cos A$ 3) $\tan A$
2) $\sin A$ 4) $\cos C$

2. If scalene triangle XYZ is similar to triangle QRS and $m\angle X = 90°$, which equation is always true?
1) $\sin Y = \sin S$ 3) $\cos Y = \sin Q$
2) $\cos R = \cos Z$ 4) $\sin R = \cos Z$

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 $\cos L$?
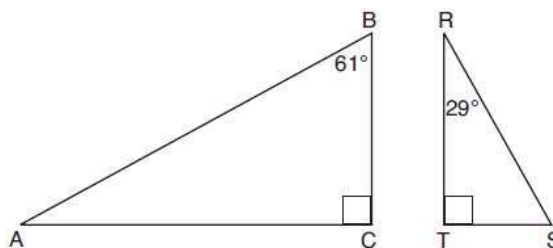

1) $\sin R$
2) $\cos R$
3) $\sin P$
4) $\cos P$

4. Given right triangle ABC with a right angle at C, $m\angle B = 61°$. Given right triangle RST with a right angle at T, $m\angle R = 29°$.
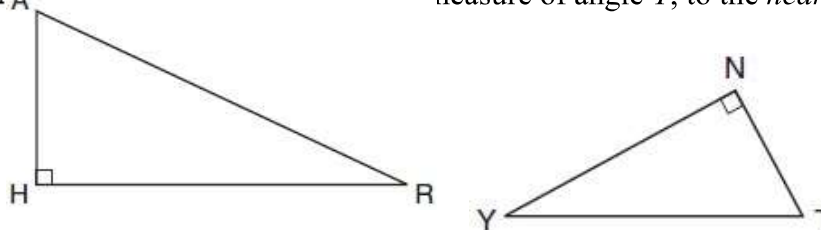Which of the following statements is true?
1) $\sin A = \cos C$
2) $\sin B = \cos R$
3) $\sin S = \cos B$
4) $\sin C = \cos T$

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 ⌐ ⌐   measure of angle Y, to the *nearest degree*?
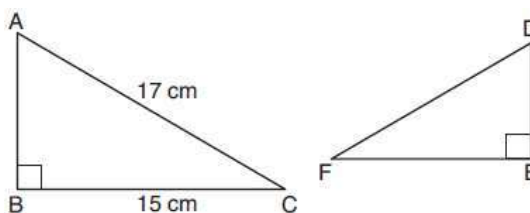1) 23°
2) 25°
3) 65°
4) 67°

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°

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