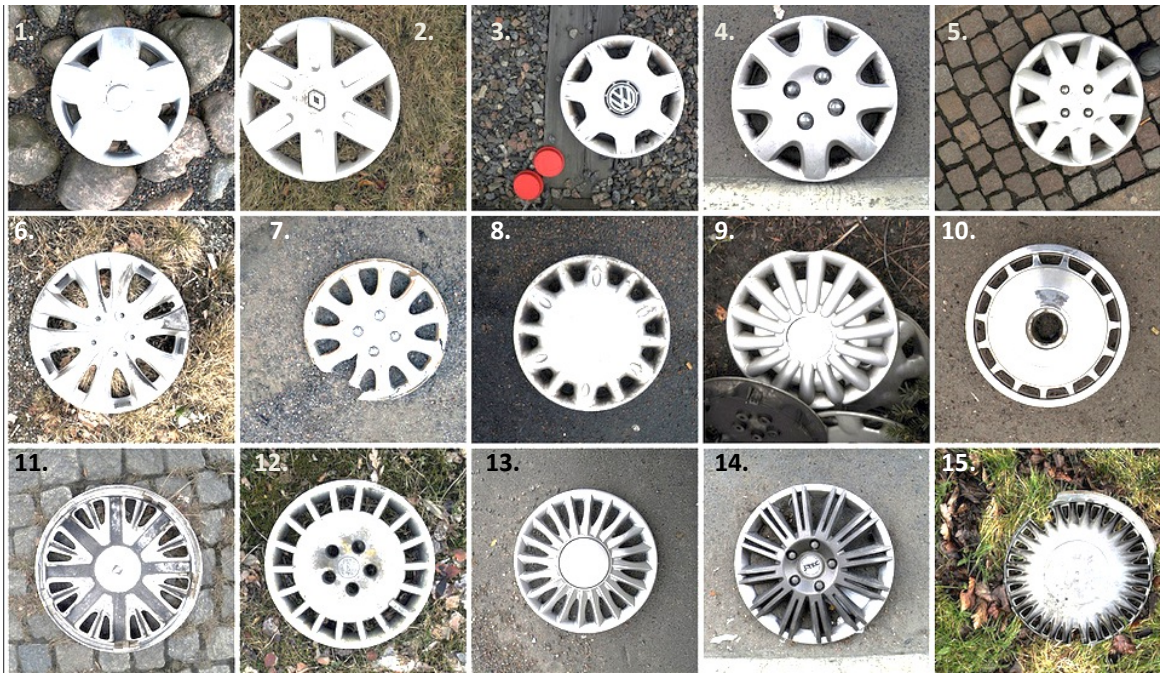
READY, SET, GO! Name Period Date

READY

Topic: Rotational symmetry

Hubcaps have *rotational symmetry*. That means that a hubcap does not have to turn a full circle to appear the same. For instance, a hubcap with this pattern,  will look the same every ¼ turn. It is said to have 90º *rotational symmetry* because for each quarter turn it rotates 90º.

State the *rotational symmetry* for the following hubcaps. Focus your answer on just the spokes, not the center design.(Answers will be in degrees.



g.
h.
i.
j.

SET

Topic: Area formulas for triangles

Area of an Oblique Triangle: The area of **any** triangle is one-half the product of the lengths of two sides times the sine of their included angle. $Area = \frac{1}{2}bc\ \sin A = \frac{1}{2}ab\ \sin C = \frac{1}{2}ab \sin B$

Need help? Visit **www.rsgsupport.org**

mathematics vision project

Find the area of the triangle having the indicated sides and angle.

16. $C = 84.5º$, $a = 32$, $b = 40$

17. $A = 29º$, $b = 49$, $c = 50$

18. $B = 72.5º$, $a = 105$, $c = 64$

19. $C = 31º$, $a = 15$, $b = 14$

20. $A = 42º$, $b = 25$, $c = 12$

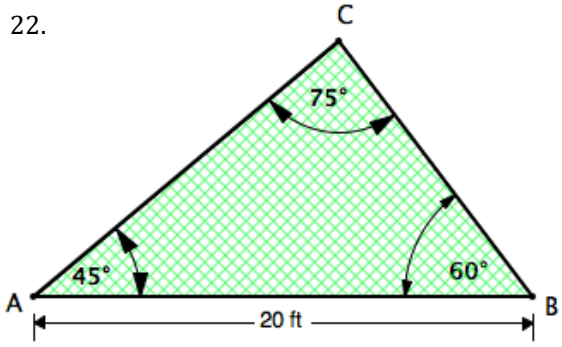
21. $B = 85º$, $a = 15$, $c = 12$

Another formula for the area of a triangle can be derived from the *Law of Sines*.

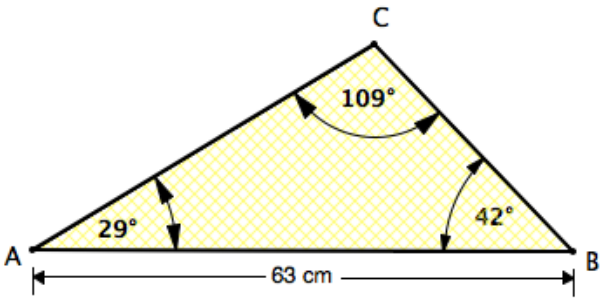
$Area = \frac{c^2 \sin A \sin B}{2 \sin C}$

Use this formula to find the area of the triangles.

22.



23.



Perhaps you used the *Law of Cosines* to establish the following formula for the area of a triangle. The formula was known as early as circa 100 B.C. and is attributed to the Greek mathematician, Heron.

Heron's Area Formula: Given any triangle with sides of lengths *a, b,* and *c,* the area of the triangle is:

$Area = \sqrt{s(s-a)(s-b)(s-c)}$ where $s = \frac{(a+b+c)}{2}$.

Find the area of the triangle having the indicated sides.

24. $a = 11,\ b = 14,\ c = 20$

25. $a = 12,\ b = 5,\ c = 9$

26. $a = 12.32,\ b = 8.46,\ c = 15.05$

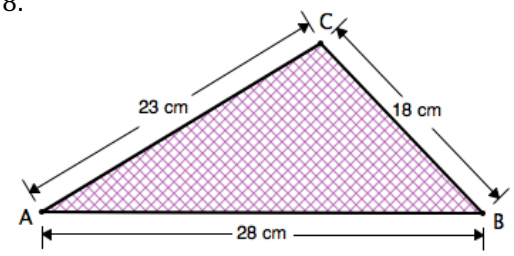
27. $a = 5,\ b = 7,\ c = 10$

GO

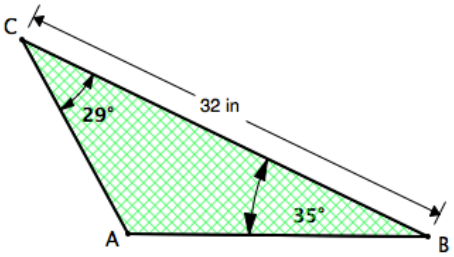
Topic: Distinguishing between the *law of sines* and the *law of cosines*

Indicate whether you would use the *Law of Sines* or the *Law of Cosines* to solve the triangles. Do not solve.

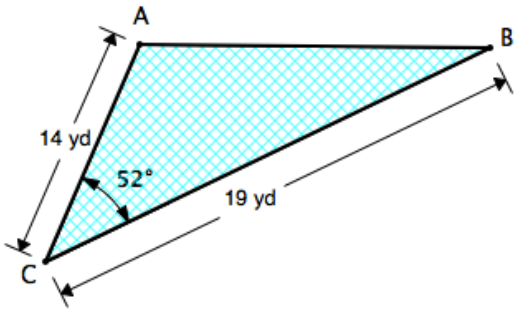
28.



29.



30.



31.