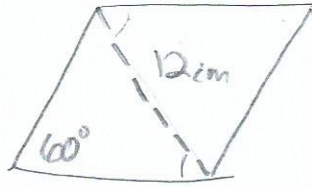


Geometry – Triangles and Circles

1. The length of one diagonal of a rhombus is 12 cm. The measure of the angle opposite that diagonal is 60° .

What is the perimeter of the rhombus?

- A. 24 cm
- B. 48 cm**
- C. $12\sqrt{3}$ cm
- D. $24\sqrt{3}$ cm



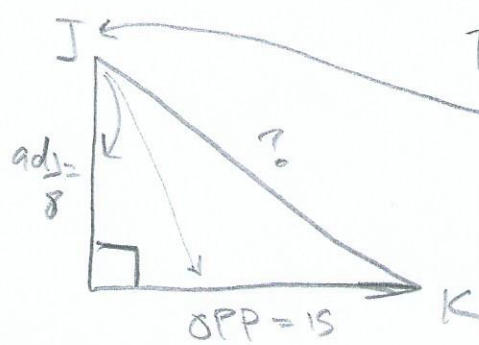
if angle is 60° then the triangle formed is equilateral, which means all sides are equal. so perimeter is $12 \cdot 4$ or 48 cm

2. Angle J and angle K are complementary angles in a right triangle. The value of $\tan J$ is $\frac{15}{8}$.

means angles add up to 90°

What is the value of $\sin J$?

- A. $\frac{8}{17}$
- B. $\frac{8}{15}$
- C. $\frac{15}{17}$**
- D. $\frac{17}{15}$



$\tan J = \frac{15}{8}$ $\tan \theta = \frac{\text{opp}}{\text{adj}}$
so

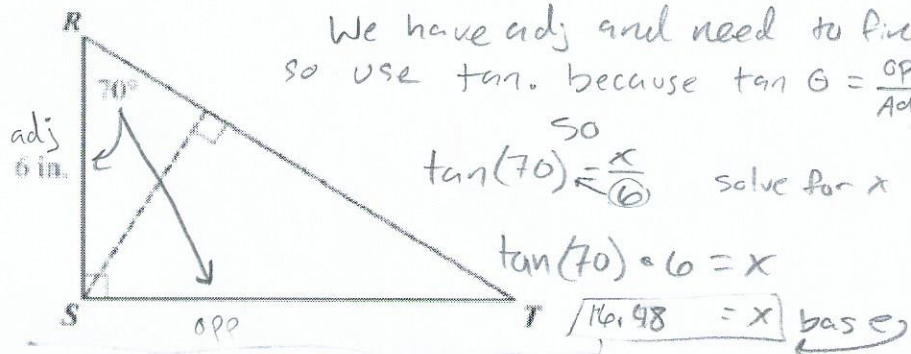
$\sin \theta = \frac{\text{opp}}{\text{hyp}}$

USE Pythagorean theorem to find hyp.

$8^2 + 15^2 = ?^2$
 $289 = ?^2 \rightarrow \sqrt{289} = \sqrt{?^2}$
 $? = 17$

so $\sin J = \frac{15}{17}$

3. Triangle RST is a right triangle with right angle S , as shown.



We have adj and need to find opp
so use tan. because $\tan \theta = \frac{\text{opp}}{\text{adj}}$

so
 $\tan(70) = \frac{x}{6}$ solve for x

$\tan(70) \cdot 6 = x$

$16.48 = x$ base

What is the area of triangle RST ?

- A. 6.15 sq in.
- B. 6.54 sq in.
- C. 46.47 sq in.
- D. 49.45 sq in.**

Area = $\frac{1}{2} \cdot b \cdot h \rightarrow$ b is base
h is height

We have height, so use trig to find base

so $A = \frac{1}{2} \cdot 16.48 \cdot 6 = 49.44$