



Name _____ Date _____ Period _____

LAW OF COSINES WORKSHEET

Law of Cosines:

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

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

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

Solve the following equations for x .

1. $23^2 = 37^2 + 18^2 - 2(37)(18)\cos(x)$

2. $x^2 = 10^2 + 8^2 - 2(10)(8)\cos(60^\circ)$

$x =$ _____

$x =$ _____

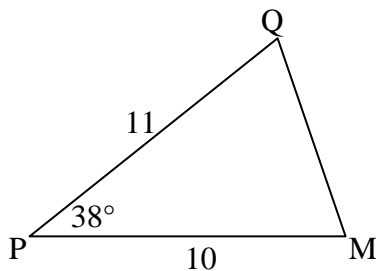
Find the missing measure using the given measures of $\triangle KLM$.

3. In $\triangle KLM$; $m = 11$, $l = 17$, and $m\angle K = 59^\circ$. Find k .

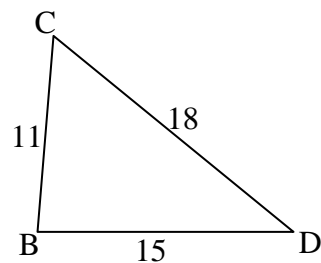
$k =$ _____

Solve each triangle by finding all of the missing side lengths and angle measures.

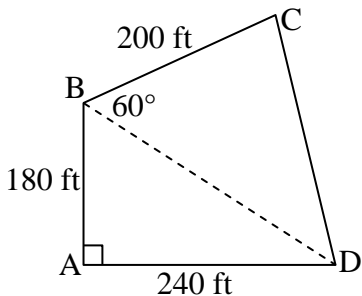
4.



5.



6. Ms. Jenkins is buying some property that is shaped like quadrilateral $ABCD$ below. Find the perimeter of the property.



7. Put an “x” in the box that indicates whether the Law of Sines or the Law of Cosines is the appropriate law to **start** with for each triangle situation.

| Triangle Pattern | Law of Sines | Law of Cosines |
|------------------|--------------|----------------|
| 1. ASA | | |
| 2. AAS | | |
| 3. SAS | | |
| 4. SSA | | |
| 5. SSS | | |

8. A direct flight from Halifax to Chicago’s O’Hare airport covers a distance of 1875 km. Because of recent changes to Air Canada, though, the direct flight is no longer offered. Now passengers must fly from Halifax to Toronto’s Pearson International Airport first. The flight distance to Toronto is 1620 km. The direction difference (angle) between the two flight paths is 27° . How far is Toronto from Chicago?

DRAW A TRIANGLE FIRST!!!

9. Solve the triangle.

