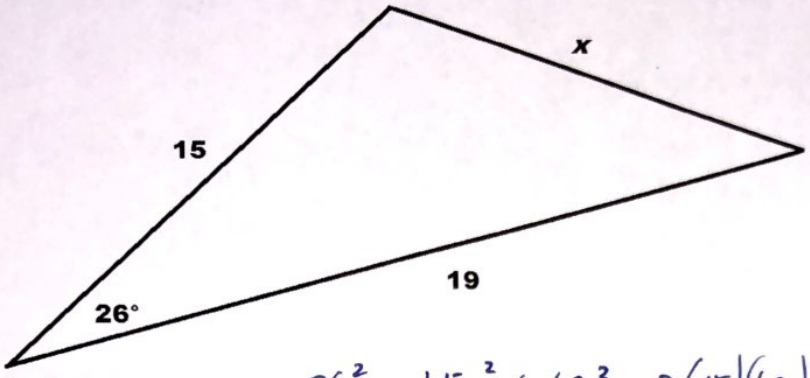
Name S. Lowans IB Math Applications Date_____

6.2B- Trig Identities: Cosine Rule

Find the missing values using the cosine rule

Problem #1



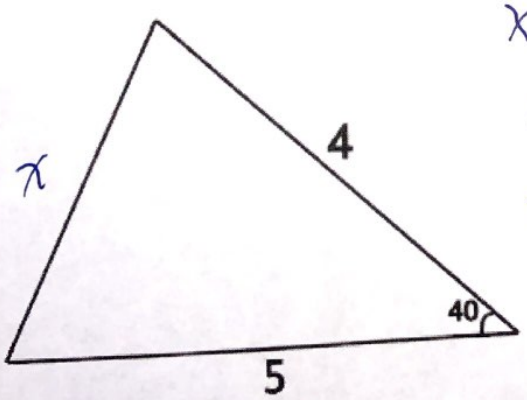
$x^2 = 15^2 + 19^2 - 2(15)(19)\cos 26°$

$x^2 = 73.68739...$

$x = 8.58413...$

≈ 8.58

Problem #2 - Find the missing side



$x^2 = 4^2 + 5^2 - 2(4)(5)\cos 40$

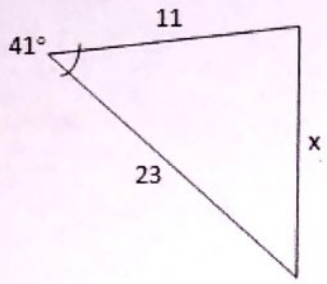
$x^2 = 10.35822222...$

$x = 3.218419...$

≈ 3.22

Solutions

Problem #3



$x^2 = 23^2 + 11^2 - 2(23)(11)\cos 41$

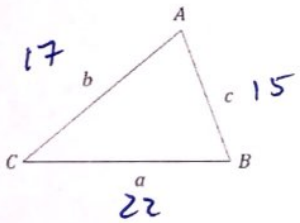
$= 268.1169\ldots$

$x = 16.372477\ldots$

≈ 16.4

Problem #4

In the triangle below, $a = 22, b = 17$, and $c = 15$. Find the measure of $\angle A$ to the nearest tenth.



$\cos A = \dfrac{-22^2 + 17^2 + 15^2}{2(17)(15)}$

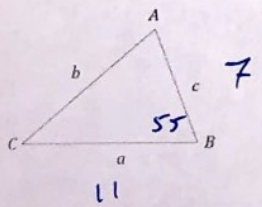
$= +0.058823\ldots$

$A = 93.3722\ldots \quad 86.627\ldots$

$\approx 93.4 \quad \approx 86.6$

Problem #5

In the triangle below, $m\angle B = 55°$, $a = 11$ meters, and $c = 7$ meters. What is the length of *b*, to the nearest tenth of a meter



$b^2 = 11^2 + 7^2 - 2(11)(7)\cos 55$

$= 81.6652\ldots$

$b = 9.0371028\ldots$

≈ 9.0 m