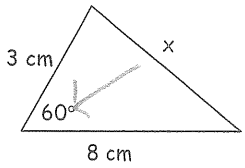
Name Key

Homework Day 5 Law of Cosines

1-4 Find the value of x. Round to thousandths. Show work.

7 cm 1)

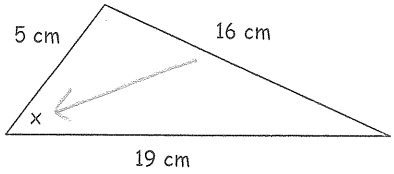


$x^2 = 3^2 + 8^2 - 2(3)(8)\cos 60°$

$x^2 = 49$

$x = 7$ cm

46.826° 2)

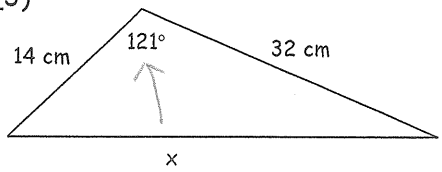


$16^2 = 5^2 + 19^2 - 2(5)(19)\cos x°$

$.684 = \cos x$

$x = 46.826°$

41.006cm 3)

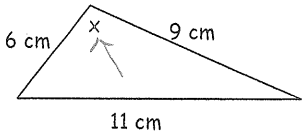


$x^2 = 14^2 + 32^2 - 2(14)32\cos 121°$

$x^2 = 1681.474$

$x = 41.006$ cm

92.123° 4)



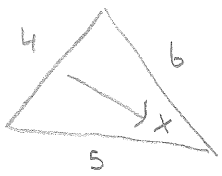
$11^2 = 6^2 + 9^2 - 2(6)(9)\cos x°$

$-.037 = \cos x$

$x = 92.123°$

5-8 SHOW WORK. Round to thousandths.

41.410° 5) The lengths of the sides of a Δ are 4cm, 5cm, and 6cm. Find the measure of the smallest angle.

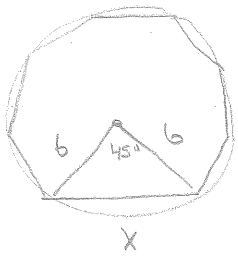


$4^2 = 5^2 + 6^2 - 2(5)(6)\cos x°$

$.75 = \cos x$

$x = 41.410°$

36.738 cm 6) A regular octagon is inscribed in a circle with a radius of 6cm. Find the perimeter of the regular octagon.



Perimeter = $8(x)$ = 36.738 cm

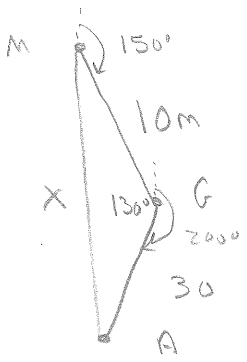
$\frac{360}{8} = 45°$

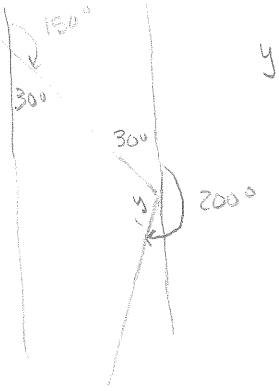
$x^2 = 6^2 + 6^2 - 2(6)(6)\cos 45°$

$x^2 = 21.088$

$x = 4.592$

31.007 m 7) The bearing from Mathville to Geoville is 150° and the distance is 10m. The bearing from Geoville to Algeville is 200° and the distance is 30m. Find the distance from Mathville to Algeville.





$y = 360 - (30 + 200)$

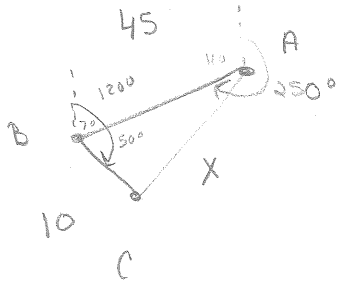
$= 130°$

$x^2 = 30^2 + 10^2 - 2(10)(30)\cos 130°$

$x^2 = 961.433$

$x = 31.007$ m

39.325 ft 8) The bearing from A to B is 250°. The bearing from B to C is 120°. The distance from A to B is 45 ft and the distance from B to C is 10 ft. Find the distance from A to C.



$x^2 = 10^2 + 45^2 - 2(10)45\cos 50°$

$x^2 = 1546.491$

$x = 39.325$ ft