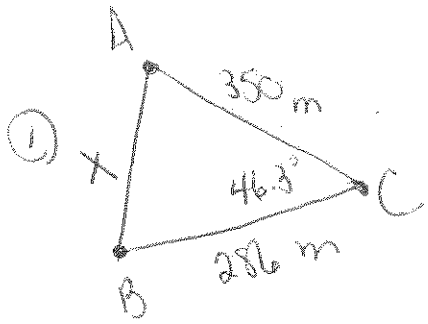
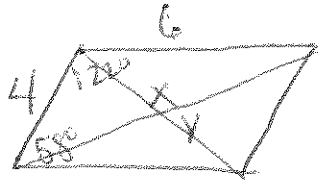
Practice Worksheet #1: Application of Law of Sines & Law of Cosines

① 

$x^2 = (350)^2 + (286)^2 - 2(350)(286)\cos 46.3°$

$x = 256.9$ m

$\boxed{AB = 256.9 \text{ m}}$

② 

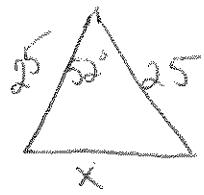
$x^2 = (4)^2 + (6)^2 - 2(4)(6)\cos 122°$

$x = 8.8$

$y^2 = (4)^2 + (6)^2 - 2(4)(6)\cos 58°$

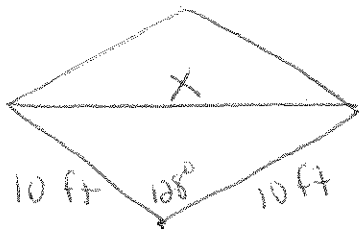
$y = 5.2$

$\boxed{\text{The diagonals are } 8.8 \text{ cm and } 5.2 \text{ cm.}}$

③ 

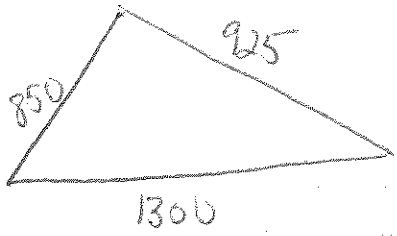
$x^2 = (25)^2 + (25)^2 - 2(25)(25)\cos 52°$

$\boxed{x = 21.9 \text{ ft}}$

④ 

$x^2 = (10)^2 + (10)^2 - 2(10)(10)\cos 128°$

$\boxed{x = 18 \text{ ft}}$

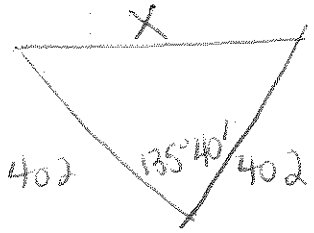
⑤ 

$s = 1537.5$

$A = \sqrt{1537.5(\quad)(\quad)(\quad)}$

$A = 392,128.8$ sq. miles

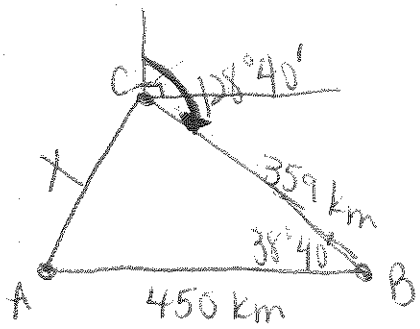
(6)



$x^2 = (402)^2 + (402)^2 - 2(402)(402)\cos 135°40'$

$x = 744.6$ miles

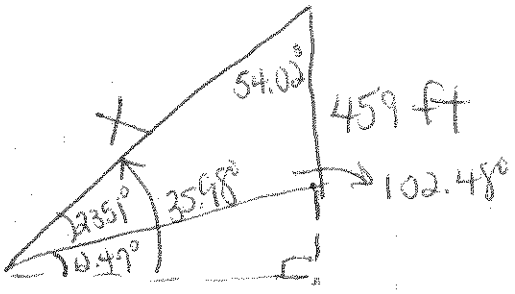
(7)



$x^2 = (450)^2 + (359)^2 - 2(450)(359)\cos 38°40'$

$x = 281.3$ km

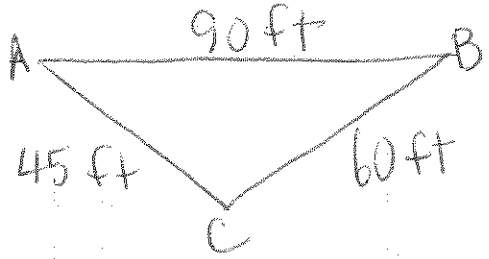
(8)



$\frac{\sin 23.51°}{459} = \frac{\sin 102.48°}{x}$

11235 ft of rope

(9)



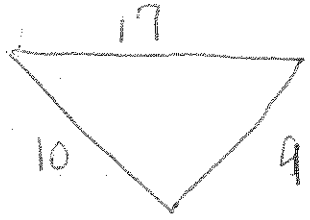
$(60)^2 = (45)^2 + (90)^2 - 2(45)(90)\cos A$

$\angle A = 36.3°$

$(45)^2 = (60)^2 + (90)^2 - 2(60)(90)\cos B$

$\angle B = 26.4°$

(10)



perimeter = 36 $\quad s = 18$

$A = \sqrt{18(18-9)(18-10)(18-17)}$

$A = 36$ sq units